2008

Analysis of policy and educational approaches within the Seattle recycling program

Ryan Joel Six
Iowa State University

Analysis of policy and educational approaches within the Seattle recycling program

by

Ryan Joel Six

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Education (Curriculum & Instructional Technology)

Program of Study Committee:
Ann Thompson, Co-Major Professor
Ana-Paula Correia, Co-Major Professor
Jackie Blount

Iowa State University

Ames, Iowa

2008

To my father, my brother, and my wife: you have given so much and have never expected anything in return. I dedicate this study to you.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

I would like to begin by expressing my sincere gratitude to my committee. To my co-major professor Dr. Ana-Paula Correia, thank you for your time, wonderful support, suggestions, and guidance. I am truly grateful for your assistance and mentorship. To my co-major professor Dr. Ann Thompson, thank you for your time and efforts on serving my master's committee and providing invaluable suggestions and direction regarding my study. To Dr. Jackie Blount, thank you for your time and feedback and for helping me arrive at the realization of what ultimately led to this study. The three of you and your combined belief in me has been a true inspiration.

Secondly, I would like to thank my family and friends for their support. To my family who has always given me unconditional love and support. To a special couple in Steilacoom, thank you for your endless support, encouragement, and generosity. To my fellow graduate students and those that served on the expert panel, you know who you are. Thank you all for your support, collaboration, and cooperation. I would also like to extend my thanks to the faculty and staff in the Curriculum & Instruction department.

Special thanks to the love of my life, my wife Kristy, who has been there throughout the duration of this study. She has shared both the low and high points throughout the entire process. As my thesis neared completion, her love and support has helped guide me to the finish. Kristy, thank you for being my compass, I love you.

Ryan Joel Six

March 2008

ABSTRACT

This study aims to deepen our understanding of the policy and educational approaches within the Seattle, Washington residential recycling program. Through an analysis of Seattle's policy approaches and the role of education, this study makes recommendations for both its improvement and other communities looking to bolster and or implement their own recycling program. To guide the recommendations, it was necessary to find how a recycling program can target a broad audience to create more awareness and reach those in the community that have not been involved. Straughan (1999) noted that the success of a community's' recycling program relies on the effectiveness of its citizenry's knowledge and education on recycling. Using instructional design as the lens of analysis, this study investigated how Seattle Public Utilities (SPU) used electronic and paper-based educational materials to informally educate the community about recycling within the Seattle recycling program. This study also analyzed the policy approaches of Seattle's formal and informal practices (such as city legislature) constructed to prioritize recycling within the city. The policy analysis revealed Seattle's major policy approaches are focused in the policy areas of operations, administration, and finance and are key to Seattle's recycling program and Seattle's continued success in waste-stream diversion. The results of the content analysis revealed that the educational documents and materials have a strong educational purpose. Recommendations for policy suggest communities looking to strengthen or augment their current practices could focus on the areas of operations,

administration, and finance when considering direction for policy options to fit their own community's needs. Education-related recommendations for communities suggest creating informal educational documents and materials making use of and following sound instructional and visual design principles. Education-related recommendations for Seattle include communicating the users' participation in the city's recycling program as benefiting not only them, but also a larger audience.

CHAPTER 1. INTRODUCTION

Living in the Midwest of the United States to complete my graduate studies, I noticed a major difference in recycling practices compared to my permanent home in the Northwest where I grew up. In the Northwest, communities recycle (plastic, paper, glass, tin, etc.) much more extensively than in the Midwest. The amount of waste that was generated in the Midwestern city in which I lived and not recycled bothered me, so I began contemplating the differences in attitudes and behaviors of those in the Midwest compared to those in the Northwest region of the U.S. I was sure awareness was part of the issue as well, and with my interests in the design of instruction and policy analysis, I chose to analyze a successful community-recycling program to help understand what makes a program successful, and in the process provide information that could benefit other communities' recycling efforts.

Seattle, WA is a leader in community recycling. Since 1971, Seattle has been enacting public policy to reduce municipal waste (trash or garbage) and to increase waste diversion tactics such as recycling (Seattle City Clerk's Office, 2007). In 2006, Seattle received the Community Recycling award from the American Forest & Paper Association for the City's efforts and accomplishments in recycling. In 2000, Seattle began experiencing a decline in recyclable recovery. To bring about change, Seattle enacted a policy in 2003, which prohibited recyclables from residential and commercial garbage. To help institute the change, Seattle began using media to disseminate educational materials in the form of print, radio, and television (T.V.), resulting in an

increase of awareness of recycling by 50 percent. The overall support for the recycling regulations has grown to 82 percent. Because of the City's efforts in 2005, Seattle's overall solid waste tonnage was reduced to its lowest point in 10 years. The residential recycling program saved 4.4 million dollars by collecting and selling more than 160 million pounds of recyclables to markets throughout the U.S. and the Pacific Rim (American Forest & Paper Association, 2006).

If Seattle's achievements have been so great, why are there not more communities using the same methods and approaches to recycling? An analysis of the policy approaches as well as the role of education within Seattle's residential recycling program is needed to inform other communities on what actions can be taken to achieve similar results.

Objective and Research Questions

As an objective, this study intends to offer an in-depth analysis and depiction of the Seattle recycling program. Further, this study aims to promote effective recycling practices across communities in the U.S. through an analysis of the policy and educational approaches the Seattle, Washington residential recycling program has taken and make recommendations for both its improvement and other communities looking to bolster and or implement their own recycling program. To guide the recommendations, it was necessary to understand how Seattle has used policy and education to both bolster their recycling program and educate their citizens about recycling.

Straughan (1999) noted that the success of a community's' recycling program relies on the effectiveness of its citizenry's knowledge and education of recycling. Using instructional design as the lens of analysis, this study investigated how Seattle Public Utilities (SPU) uses electronic and paper-based educational materials to informally educate the community about recycling within the Seattle recycling program as well as analyze the effectiveness of Seattle's formal and informal practices (policies and legislature) the city has constructed to prioritize recycling within the city.

The following research questions were pursued:

What approaches has Seattle, Washington taken to develop their residential recycling program?

a. What are the major policy approaches used (ex.: local government legislature and community constructed formal and informal practices)?
b. What is the role of education within the Seattle recycling program (including an instructional analysis of educational activities)?

CHAPTER 2. LITERATURE REVIEW

To understand the policy approaches and role of education within the Seattle residential recycling program, it was necessary to review the existing research on the literature significant to this study. The following review summarizes the research on the topics of recycling, informal learning, policy analysis, and instructional design analysis. To begin with, a discussion of the approach used in the search for relevant literature is described below.

Literature Search Methodology

The search for the review began by bringing together relevant literature on four areas of focus: recycling, informal learning, policy analysis, and instructional design analysis. Suggestions from subject matter experts (SMEs) on relevant materials and resources for the instructional design analysis components aided the early stages of the literature review and led to nearly all of the resources obtained related to instructional design. Communications with SMEs from Seattle Public Utilities (SPU) also proved to be fruitful and led to relevant resources and information on recycling and informal education.

The *International Encyclopedia of Education* proved to be a strong reference for locating key words used for effective searching. The most effective keywords were "community recycling" "recycling behavior," and "informal learning recycling." Literature searches involved methods and strategies as employed in Nilakanta (2006)

and using the university library's electronic catalog. For example, WorldCat OCLC's Online Union Catalog, Educational Resource Information Clearinghouse (ERIC), Dissertation Abstracts, Education Abstracts, Google, Google Scholar, and various other scholarly journals such as the Journal of Environmental Education were employed in the search. The WorldCat OCLC's Online Union Catalog and Dissertation Abstracts resulted in 81 hits, yet none relevant. ERIC returned 201 hits using descriptor searches, and only one article was relevant. The Professional Development Collection returned 330 hits using the key word combination of "community recycling," four of which were relevant.

Once a significant article was selected, the article was sorted according to one of four appropriate themes as indicated above; recycling, informal learning, policy analysis, and instructional design analysis. Articles were then scanned for relevant key words that aided in the continued search for literature and additional resources were obtained by referring to the references section of each article. For example, by working backwards through Spiegelman (2006) early in the process it became apparent that the Environmental Protection Agency (EPA) provided important data on and about solid waste trends in the United States since the 1960's.

Recycling

The state of literature on the subject of recycling provides strong evidence of the trends in the United States concerning municipal waste, recycling, and recycling behaviors. As Spiegelman (2006) noted in her example (citing information from New

York), 100 years ago trash in the United States used to be composed of three categories, ashes, garbage, and rubbish making the yearly average of solid waste output a little over half of one ton. Of that amount, ashes (accumulated from stoves used for warmth and preparing meals) accounted for 77 percent of the total, garbage such as food wastes contributed 15 percent, and seven percent came from manufactured items such as metals, wood products, and glass. In 2006, New York reported a yearly output of municipal solid waste at 36.5 million tons (Simmons, Goldstein, Kaufman, Themelis, & Thompson, 2006). The United States Environmental Protection Agency (USEPA) estimated that in 2005, the United States saw paper and cardboard as the largest component in the municipal waste stream at 34 percent, yard trimmings the second largest at 13 percent. "Glass, metals, plastics, wood, and food scraps *each* (emphasis added) constituted between 5 and 12 percent of the total municipal solid waste generated," leaving textiles and other miscellaneous materials to compose ten percent of the solid waste stream (United States Environmental Protection Agency, 2006).

The most striking change in the examples given above is the increase of recyclable solid waste from seven percent to almost 60 percent in a span of 100 years. Municipal solid waste management systems were developed to handle a waste stream such as that of New York's 100 years ago. Today, the waste stream is far more difficult to manage due to the dominance of reusable products (Spiegelman, 2006). Spiegelman cites moral and social arguments to be the most effective reasons for recycling to increase, and blames municipalities from over 100 years ago arguing that if the municipalities would have limited their collection practices to ashes and garbage,

citizens and producers would have developed stronger methods of recycling and responsibility.

Spiegelman's call for responsibility rings true in many situations concerning municipal waste and the Regional District of Kootenay Boundary in British Colombia serves as an example of a community rising to Spiegelman's challenge. Beginning in 1995, Kootenay Boundary banned the disposal of corrugated cardboard and three years later, they banned refundable beverage containers. By 2004 the successes reclaiming reusable resources were so great, Kootenay Boundary had banned "… from disposal any material that is accepted in a local recycling program and any product that is covered by a provincially mandated extended producer responsibility program." To encourage recycling further, Kootenay Boundary increased disposal costs in the region while expanding the opportunities to recycle (Gaudart, 2006, p. 13). The strong actions taken by Kootenay Boundary demonstrate their beliefs and attitudes, including responsibility on the management of their waste stream, but in many communities there exist great barriers where recycling is not as accessible, convenient, or even mandatory for people to participate.

One of the major themes in the literature on recycling was the agreement on the importance of how beliefs, attitudes, and convenience factor into the success and participation in a municipal recycling program (Biswas, Licata, McKee, Pullig, & Daughtridge, 2000; Cleveland, Kalamas, & Laroche, 2005; Díaz, 2006; Díaz & Beerli, 2005; Ebreo & Vining, 2001; Feiock & Kalan, 2001; Jurin & Fortner, 2002; McCarty & Shrum, 2001). Cleveland et al. (2005) findings indicate that the more consumers care

about the environment, the more consumers are inclined to take action or exhibit pro-environmental behaviors. They go on to suggest that government-sponsored policy be used to intervene and create pro-environmental communications to emphasize the negative "… effects of inaction that arise as a result of consumers' short-term preoccupations with convenience" (p. 206). Cleveland et al. (2005), and Feiock and Kalan (2001) further suggest that public policy makers increase the convenience of recycling by not requiring citizens to cleanse their recyclables, but to implement the cleansing of recyclables at a collection facility.

Jurin and Fortner (2002) argue symbolic beliefs as the reason for poor output of responsible environmental behavior; many people do not practice pro-environmental behaviors despite effortlessly stating opinions, attitudes, and being aware of environmental concerns and crises. Ebreo and Vining's (2001) study contrasts with Jurin and Fortner's research (2002), finding that intrinsic motivation and awareness of present and future impact are positively related to environmentally responsible behavior. Biswas et al. (2000) takes the subject of attitudes on recycling a step further with their results, as they suggested both weak and strong attitudes for those who participate in waste recycling behaviors strongly correlated with past behaviors. Díaz's (2006) research found that changing attitudes is necessary to involve those with negative outlooks on recycling to participate. In order for one to adopt a new behavior, positive beliefs about the behavior are a necessary precursor before the adoption can take place.

Building on Berger's (1997) research, McCarty and Shrum argue that convenience is a predictor of recycling behavior. Lansana (1992) indicated that recycling behavior is linked to convenience. McCarty and Shrum (2001) found that when contrasting importance and convenience, the two interconnect on three dimensions related to specific beliefs and behaviors.

> First, the importance of recycling relates to the benefits of engaging in the behavior (e.g., a cleaner environment), whereas inconvenience focuses on the costs (e.g., the time required to prepare materials for collection). Second, the importance of recycling is a long-term consideration, but inconvenience is primarily short-term in nature. …the benefits of the environment will generally only be realized in the future, and therefore people may not see these positive results in any immediate way, whereas the costs to the individual in terms of engaging in the behavior are relatively immediate. Third, the two belief constructs differ in their level of abstraction. Because the importance of recycling relates to long-term rewards for the environment and society, these beliefs tend to be more abstract and general in nature than beliefs about the inconvenience of recycling, which focus on immediate costs to the individual and tend to be more concrete and specific (p. 95).

Economic status also plays a role in recycling behavior (McCarty & Shrum, 2001); those people of higher economic status are more likely to recycle than those of a lower economic status and their participation is linked to both access and motivation. Those of a higher economic status are likely to have greater access than those of a lower economic status, and of those people with a lower economic status, their value or perceived importance of recycling is not motivating.

Another smaller, but notable theme in the literature is the influence of social norms on recycling behavior. Boldero (1995) and Hopper and Nielson (1991) found that others conform to social norms as a reason for their participation. The perceived

benefits of recycling came second to conforming to social norms of their community (Boldero, 1995).

Garcés, Lafuente, Pedraja, and Rivera, (2002) disagree with the majority of empirical literature on sociodemographic attributes for the lack of recycling behavior as the results are not conclusive on attributing sociodemographic variables and that they have limited association with recycling behavior. Garcés et al. findings suggest that social behavior responds to public authorities when programs are enforced, and the perceived benefit is higher when the action (recycling) is required of the citizen and is convenient. Their study further reveals that education on environmental problems, their effect on the environment and "… the perception of good program management by the local authorities exercise a positive effect on the recycling behavior of citizens" (p. 386). Garcés et al. concludes that citizens will participate in a program implemented by authorities if they perceive the program is effective and efficient and addresses a known issue. To harness the potential of community members who have the propensity to recycle, education is needed and can be encouraged through informal learning (McCarty & Shrum, 2001).

Informal Learning

To encourage the uptake of recycling as a common and regular practice for all citizens, education is necessary. Informal learning serves as a strong means of capturing the potential of non-recycling community members through education and converting the propensity to recycle into active participation in a recycling program. It

can also serve to educate long-standing participants to become more efficient and effective recyclers.

A major contributor to the topic in defining, substantiating, and assessing informal learning is Livingstone's (2001) study on informal learning. Livingstone (2001) defined informal learning as "… any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of imposed curricular criteria." Informal learning includes learning carried out by one's self such as "…intentional job-specific and general employment-related learning done on your own, collective learning with colleagues of other employment-related knowledge and skills, and tacit learning by doing" (p. 3).

Livingstone argued that informal learning occurs in irregular time and space patterns. Life shaping and knowledge influencing events can happen in any place or span of time. The amount of time one spends on learning a given process does not necessarily guarantee successful learning results. Livingstone also found high correlations between community-based informal learning and paid employment-related informal learning, where the more interest one has in the given activity, the stronger the association between the time invested in such activities as well as the frequency of informal learning.

In reviewing Marsick and Watkins's study (2001) on informal learning, their definition was nearly identical to that of Livingstone's. Where Livingstone strives to define informal learning, Marsick and Watkins couches informal learning in an organizational and business context, and to date the majority of existing literature on

the subject of informal learning revolves around organizational and business environment contexts.

How do recycling and informal learning work together? Is it happening? The literature to date does not explicitly answer these questions, but does allude to resolutions that suggest that informal learning and recycling can work together such as Díaz and Beerli's (2005) call for practical applications to involve more citizens who have the propensity to recycle.

Policy Analysis

Informal learning and recycling support each other to accomplish goals set forth by communities. These goals created by communities take the form of policies and legislature enacted by local government, which vary in scope and effect. Analyzing policy allows for the investigation of how a political body (in this case the Seattle City Council and SPU) seeks prioritizing waste reduction, resource reclamation, and environmental stewardship.

Given that this study loosely employed a structure similar to several policy analysis studies, it is important to discuss and define the term "policy analysis." Within the literature concerning policy analysis, there seemed to be a struggle in how to define the term. Meltsner, (1976); Jennings, (1987, p. 130); and Weimer and Vining (1989, p. 11) defined 'traditional' policy analysis as, "… providing advice to their clients." Weimer and Vining (I989) note that the advice is used to inform a decision implicitly (A will result in X) or explicitly (supporting A will result in X, benefiting you, your constituency,

and your country). A trained or experienced analyst who utilizes various inputs such as information, data, and opinions develops the advice. These methods are extracted from economics and statistics with an awareness and knowledge of political and organization conduct to foresee and perhaps influence feasibility of adoption and successful implementation of policies (Weimer and Vining, 1989). Critics have claimed that traditional policy analysis is insufficient to enhance policy decisions. They maintain traditional analysis undermines democratic decision-making by harming society and providing wrong or misleading advice rather than aiding the process of making better decisions.

The new field of public policy was stated by Lasswell (I951) to be the "policy sciences of democracy (p. 3)." The objective was to offer intelligence for decisions and to discover ways to improve how policy decisions are made. Some critics believe this vision has not been fulfilled. These critics accused traditional policy analysis of diminishing citizens' impact on policy decisions. Hawkesworth (I988) and Fischer (I990) claim that policy analysis interferes with democratic decision-making. When the advice of policy analysts as well as other experts is recognized as authoritative, public partiality is reduced. Dryzek (1989) maintains the main political purpose of the collective weight of technically complicated policy analysis may be to promote the idea that public policy is the privilege of experts.

The matter of tension amongst expert knowledge and democracy avoids the central topic of policy analysis and as a replacement has been imparted upon a variety of experts and professional knowledge producers, including most social scientists.

These social scientists, which include policy analysts, stand accused of serving power elites to coerce and manipulate the public while supporting them enough to preserve the status quo over the powerless. Dryzek (1989), a strong critic concerning policy science, argues that most policy analysis efforts to date are consistent with an understated policy science of tyranny. By tyranny, Dryzek implicates any policy process controlled by a select few that exercises authority over the desire and aspirations of ordinary people. Fischer (1990) agrees and accuses trained policy scientists for using expert knowledge to benefit their own interests and those of a power elite intent on upholding its own dominance over the rest of society.

Despite the view of some, the majority of analysts would most likely agree with Kweit and Kweit (1987) that while policy analysis techniques create a shield of purity or sacredness for policy, there is no difference between the use of expert techniques and participation of citizens in the policy process. Technical methods create an instrument to vocalize the collective desires of many and shape a foundation by which to manage democratic demands. Other analysts would maintain that they prefer to view their service for public interest as entrepreneurs (Meltsner, 1976). Behn, (1981) contended that citizens serve as "advocates for efficiency." Majone, (1989) supported this view by denying the efforts of special interest groups wanting to produce returns through government actions and choosing and implementing the best policy for society. Other analysts would indicate that they work for clients who either directly or indirectly, have electoral legitimacy to make policy decisions making their analytic

work part of the democratic policymaking process. Most analysts would most likely contend their sensitivity to their multiple responsibilities.

For the purposes of this study, the term "policy" is defined as any program of actions formally or informally conducted by local government legislature and or community, which culminate in a course of actions or set of principles.

Instructional Design Analysis

Instructional design analysis is included in this study as it brings an evaluative element based on the principles of instructional design analysis. This analysis played a critical role in this study where the examination and evaluation of educational materials employed by the City of Seattle and SPU was measured against criteria common to instructional design analysis. The criteria are embedded within an analysis tool (see *Appendix A*). The techniques of instructional design analysis were used to analyze the educational value of the electronic and paper-based educational materials to reveal the instructional value of these materials in the Seattle's residential recycling program.

To gain a better understanding of instructional design analysis, the terms *instruction*, *design,* and *analysis* are defined. Instruction is "… the intentional facilitation of learning toward identified learning goals" (Driscoll, 2000, p. 345). Design "implies a systematic or intensive planning and ideation process prior to the development of something or the execution of some plan in order to solve a problem" (Smith & Ragan, 2005, p. 6). Put together, the terms form a discipline known as instructional design. Instructional design is defined as "… the systematic and reflective process of translating

principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (Smith & Ragan, 2005, p. 4).

The term *analysis* as used within the field of instructional design can often prove confusing to those new to the discipline. The analysis phase commonly covers three aspects of analysis; the needs analysis *(what is the problem? how do we solve it?)*; the task analysis *(what is the content? what is the job?)*; and finally the instructional analysis; *(what must be learned?)* (Seels & Glasgow, 1998). Due to its various uses concerning specific contexts or the "… imprecise use of terminology," some instructional designers choose to describe the three processes using the term *task analysis* (Seels & Glasgow, 1998, p. 34).

Instructional designers use analysis to address the initial stages of design and development. Analysis is usually the first major process in both linear and non-linear approaches to instructional design. These approaches are often systematic approaches based upon a model. Instructional design models are simply a way to begin constructing a mental framework of the processes involving the main principles of designing instruction. In linear approaches, also termed *foundational* approaches (see Dick & Carey, 1985) designers are discouraged from proceeding to following phases until the previous is complete (Smith & Ragan, 2005). Non-linear approaches such as rapid prototyping (see Tripp & Bichelmeyer, 1990) employ a concurrent model of development and design that can allow the designer to work from multiple stages simultaneously. In these iterative models or design processes where the entire instructional design process is concurrent, the designer may often revisit the analysis

stages. The limitation to this approach is the risk involved. If, for example, the designer fails to acquire ample data regarding the learners and or the learning task(s), the final product may be an unsuitable solution. Instructional designers also encounter further limitations when no goals are identified or learning goals related to educational experiences cannot be identified in advance (Smith & Ragan, 2005).

Instructional design analysis can claim its roots from Robert M. Gagné, as his research in learning hierarchies and hierarchical analysis became the standard approach for instructional design analysis (Reiser, 2001). Gagné professed that to learn superordinate skills, one needs to learn the subordinate skills; he termed the process a learning task analysis or instructional task analysis. At present, these terms remain in use within the field of instructional design (Reiser, 2001).

The field of instructional design continues to evolve as new and innovative methods of instruction are employed. Richey, Fields, and Foxon (2001) note that while traditional forms and approaches in instructional design continue to use the five phases of design (analysis, design, develop, implement, and evaluate), there is an increasing trend towards specialization. With the rise in technology driven education, multi-media and e-learning specialists are becoming a necessity especially in large organizations.

Recent trends also indicate a shift in instructional design from training to performance improvement, showing a higher demand for performance analysis skills creating a demand for a specialization in instructional design analysis within larger organizations (Richey, Fields, & Foxon, 2001). Within the role of an instructional design analysis specialist, there is a particular emphasis in select areas: communication and

research skills; identifying learner and environmental characteristics and conducting needs assessment; evaluation methods; and working with stakeholders and linking recommendations to the strategic goals of the organization (Richey, Fields, & Foxon, 2001).

Conclusion

With the amount of solid waste the United States generates every year, the benefits of community recycling leaves no doubt that recycling should be a priority. We know from research that social norms, convenience, attitudes, and community education play a role in the participation levels of recycling (Boldero, 1995; Díaz, 2006; Garcés, Lafuente, Pedraja, and Rivera, 2002; Gaudart, 2006). Research also links motivation to informal education and to harness the potential of community members who are open to recycling, education is needed and can be encouraged through informal learning (McCarty & Shrum, 2001).

Informal learning is learning taken on by oneself without a formal educator present and outside of a formal educational setting. The amount of time one spends on learning a given process or processes does not necessarily guarantee successful learning results, though the literature also shows high correlations between community-based informal learning and paid employment related informal learning (Livingstone, 2001). The more interest one has in the given activity, the stronger the association between the time invested in such activities as well as the frequency of informal learning. Linking informal learning to recycling is necessary for the success of

a community-recycling program. Without backing from policies and legislature enacted by local government, participation would be difficult to implement. To understand how policy influences the uptake and continuation of recycling within a community, a policy study is necessary.

Critics view traditional policy analysis as undemocratic and detrimental when influencing policy decisions as the result could potentially harm society. Some critics even imply that traditional policy analysis helps to maintain hegemony over society. Many feel that the field of policy work should be left to trained professionals and not the public, and others support the opposite view citing the public as being the largest benefactor to policy implementations, therefore the public should be the force to advise policy decisions. Policy also helps to define what role education will play in an effort to train participants what, when, where, why, and how to recycle. This training is typically produced in the form of electronic and paper-based educational materials widely available to the public citizenry within the community. To aid in the process of determining the value of these educational materials, instructional design analysis is necessary.

Instructional design is the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation. Instructional designers use analysis to address the initial stages of design and development, which includes three phases, needs, task, and instructional analysis. The analysis phase as a whole is usually the first employed within a model in both linear and non-linear approaches. However, limitations arise

when no goals are identified or learning goals related to educational experiences cannot be identified in advance. Recent research shows that specialization with respect to particular skills in training and performance is becoming common in organizations and businesses.

Summary

The literature search methodology described the techniques used to obtain relevant literature drawing from sources such as SMES, encyclopedias, academic studies, electronic databases, and reverse searches via references from literature significant to this study. The literature review focused on four areas appropriate for this study: recycling, informal learning, policy analysis, and instructional design analysis. These areas were important to help inform the methodology for the remainder of the study.

CHAPTER 3. METHODOLOGY

In this chapter, the research methodology is detailed. This qualitative study aims to promote effective recycling practices across communities in the U.S. by analyzing policy approaches and the role of education within the Seattle, WA residential recycling program. The sections *Data Collection* and *Data Analysis Techniques* are arranged to correspond to the research sub-questions a) and b) for this study.

Content Analysis

To analyze the policy-related materials, a content analysis was adopted for this study. This study also analyzes the electronic and paper-based educational materials Seattle Public Utilities uses to educate the public about recycling. An analysis tool developed by the researcher was used that employs instructional design analysis and visual principles criteria. This tool was used to further analyze electronic and paper-based educational materials containing text, image, and video related content.

Content analysis employs methods and techniques used to examine, analyze, and make inferences about human communications. These communications typically take the form of printed or written text, but can often include images, cartoons, illustrations, broadcasts, and verbal interactions. Content analysis is used in a range of disciplines: anthropology, psychology, sociology, psychiatry, history, literature, political science, education, linguistics, and artificial intelligence (Anderson, 1976).

Content analysis has a wide range of uses. Researchers commonly use content analysis for its various applications in examining human communications ranging from "… letters, stories, poetry, essays, diaries, obituaries, minutes, biographies, newspapers, radio, television, conversations, cartoons, drawing, photographs, film." "… communication content is the *what* in the classic description of communication: *who* says *what* to whom, how, and with *what effect"* (Keeves, 1997, p. 341).

The definition of content analysis in its simplest form is defined as, "… a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (Berelson, 1952, p. 489). Holsti (1969) applies the same definition, but Osgood (as cited in Pool, 1959) defined content analysis as "… a procedure whereby one makes inferences about sources and receivers from evidence in the messages they exchange" (p. 35). Weber's (1985) interpretation defined content analysis as "… a research methodology that utilizes a set of procedures that makes valid inferences from text … these inferences are about the sender(s) of message, the message itself, or the audience of the message" (p. 9). Kerlinger's (1986) extensive definition serves as the most comprehensive in which it covers variables, observation, and measurement citing content analysis as

> "… a method of studying and analyzing communications in a systematic, objective, and quantitative manner to measure variables … instead of observing people's behavior directly, or asking them to respond to scales, or interviewing them, the investigator takes the communications that people have produced and asks questions of the communications" (p. 477).

Data Collection

Sub-question a)

(What are the major policy approaches used?)

For this study, a collection of all Seattle City Council records were used detailing policies passed and enacted directly associated to the city's recycling efforts. All of the policy-related data is available online from the Seattle City Clerk's Office legislative records web page (see references for the URL). The objective was to categorize the various policies put in to action in order to bring recycling services to the citizens of Seattle, code them, and finally determine what the major policy approaches have been for Seattle and their residential recycling program.

The materials listed below are also available on Seattle Public Utilities' website and were used to cross-reference against the materials related to Seattle's recycling program. These materials include:

- SPU Apartment recycling reports (years 1997-2007)
- SPU Curbside recycling reports (years 1997-2007)

Additionally, an informal telephone conversation with the Senior Planning and Development Specialist of Seattle Public Utilities was conducted. The nature of the questions revolved around if educational theories or research was used to aid in the development process of the materials, whether Seattle continued acting upon

educational policies once implemented, and how he/she thought the role of education was within the Seattle recycling program.

Sub-question b)

(What is the role of education within the Seattle recycling program?)

The document analysis involved analyzing recycling related electronic and paper-based educational materials used in Seattle. These materials are available on the Seattle Public Utilities' website (see references for more details). The researcher and a panel of instructional design experts from a large Midwestern university analyzed these documents. The panel of experts consists of three females and two males (including the researcher); all graduate students have a variety of backgrounds and work experiences.

The first evaluator is a PhD student in Education, specializing in curriculum and instructional technology from the U.S. This evaluator's areas of expertise and former projects include veterinary medical education such as self-guided, automated Flash-based tutorials for veterinary students and helping write and edit two veterinary texts. Other projects have included creating software tutorials to teach learners how to use software, and designing and teaching servant leadership training workshops and classes.

The second evaluator is an international PhD student in Applied Linguistics with a specialization in instructional technology. This evaluator is from Denmark, and spent

time in Brazil, where a background in English and Literature was utilized during a four-year period as a teacher. Areas of expertise include project planning, materials development, and content delivery.

The third evaluator is an international student from Turkey. This evaluator is a PhD student in Education, specializing in curriculum and instructional technology. Areas of expertise include instructional design, instructional technology in K12, and technology use in teacher education and human computer interaction.

Finally, the fourth evaluator is an international student from Malaysia. This evaluator is a PhD student in Education, specializing in curriculum and instructional technology and co-majoring in human computer interaction. This evaluator's background includes time in Malaysia as an instructional designer and several experiences in instructional design projects while studying as a graduate student. All four of these evaluators agreed to participate in this study following a recruitment letter asking for their participation.

A rating system based on four categories with a point value of one through five was used to score these materials based on the instructional design analysis and visual principles criteria. Five being the highest a document or given material could receive for each category, and 60 being the highest value a particular document or given material could receive. The criteria is listed below and incorporated into the educational materials analysis checklist tool (see *Appendix A)*. The materials analyzed were distributed by the researcher to the participating evaluators. These materials include:

1. Seattle Public Utilities (SPU) Recycling Ordinance Flyer
2. SPU Recyclable Materials poster
3. SPU Yard and Food Collection poster
4. SPU Sample Letter to Tenants
5. SPU "The Recycling I.Q. Game" (Online Flash-based game)
6. SPU Recycling Tips for Apartments and Condominiums Video
7. SPU CurbWaste and Conserve Newsletter
8. SPU At Your Service Newsletter

Using an instructional design perspective to analyze existing educational materials, the following criteria were used during the analysis to inform recommendations and evaluate the effectiveness of the educational materials:

- Instructional value of the materials
    - Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).
- Appropriateness of the materials to the task and audience
    - Review the objectives and activities the instruction aims to address. Does the material cover what it claims?
    - Review the types of learners the instruction aims to address. Does the material cover what it claims?
- Ease of use
    - Is the material easy to read (and or navigate)?

  - Is the material consistent in terms of language, use of illustrations, and visual design?
  - Is the material visually appealing?
  - Does the material at any point guide or offer feedback to learners?
- Motivational design
  - Is the design of the material appealing to the intended audience?
  - Can the material grab their attention and keep the learners engaged?
  - Is the instructional experience satisfying?
  - Does the design of the material convey a message the users can safely invest in?
  - Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?

After collecting ratings from the evaluators, the researcher held conferences to form agreement on ratings between evaluators. Following the conferences, the researcher compiled inter-rater reliability scores for the eight educational documents and materials using a Microsoft Excel spreadsheet. This spreadsheet was designed to compile a generalized Kappa statistic for use with multiple raters (King, 2004).

Data Analysis Techniques

Sub-question a)

(What are the major policy approaches used?)

This study analyzes both qualitative and quantitative data regarding the city of Seattle's policies related to its residential recycling program. Qualitatively, the first step is to identify the body or universe to be studied. For this study, the body of information is in regards to policy employed by the city of Seattle for their residential recycling program. The second step was to define categories into which the universe was to be divided. Kerlinger (as cited in Keeves, 1997) cites the second stage as the most important part of the content analysis as it "… reflects the purpose of the research and theory underlying it" (p. 341). Kerlinger also noted that the categories in stage two must be objectively defined and mutually exclusive. The third step was to determine units for analysis (such as coding). The fourth and final step was to determine which units could be reliably quantified (such as in a ranking system).

The data analysis includes other qualitative techniques such as interim analysis and constant comparison. Interim analysis assists the researcher in making decisions for the data collection and helps to identify emerging topics and recurring patterns. Using interim analysis allowed the researcher to use various analysis strategies during data collection process such as scanning for possible topics related to the global perspective the data may contain. Interim analysis allowed the researcher to spot recurring meanings, themes, or patterns early in the analysis process (McMillan & Schumacher, 2001).

Constant comparison is a technique applied to the data after topics and categories were defined. Constant comparison was used to clarify the characteristics of

data. The process allowed the researcher to draw out the distinctive attributes allowing for easier categorization (McMillan & Schumacher, 2001).

Sub-question b)

(What is the role of education within the Seattle recycling program?)

The same content analysis techniques apply for the educational materials as described for the policy analysis. Quantitatively, ratings obtained from the analysis tool (*Appendix A*) were quantified using descriptive statistics. These scores supplement the qualitative component of this study. The analysis tool features criteria on which the educational materials were evaluated against a five-point rating scale. Common themes and patterns that emerged from these commentary sections are discussed in *Chapter 4*. An inter-rater reliability check was performed for each question of each educational document analyzed and is also discussed in *Chapter 4*.

Description of Context

The city of Seattle is located in the Northwest region of Washington and has a population of 573,911 residents (estimated population as of 2006) (United States Census Bureau, 2007a). The city began developing solid waste recycling implementations as early as 1971 (Seattle City Clerk's Office, 2007), and implemented its first residential curbside recycling collection (curbside refers to homeowners only) services in February of 1988 by initiating two methods of collection; the north portion

of the city using a three-bin separated collection process, and the south portion of the city using a co-mingled collection process. For residents, the participation was voluntary, free of charge, and the process lasted until April of 2000. New changes to the program in April 2000 brought recycling services bi-weekly and on the same day as garbage collection. The recycling collection service remained free, but the residence-type collection methods changed to two different services. Residences ranging from single-family homes to fourplexes receive the co-mingled collection services. Residences in multi-dwelling units (usually apartment complexes with 5 or more units) received recycling dumpsters along with their garbage dumpsters, which could be customized to the residences' recycling needs (Seattle Public Utilities, 2007i).

On January 1st, 2005, Seattle enacted a policy that banned the discarding of recyclables in the garbage. While yard waste has been prohibited from garbage collection services in Seattle since 1989, recyclables with exception of food-soiled or contaminated paper are not permitted to prevent excess waste and to reclaim recyclable materials for re-use. To help implement the city policy, Seattle began an educational outreach program in 2004 using direct mail and established a toll free number allowing residences and businesses to call with questions regarding the new policy. In 2005, the city began an educational tagging process where residences and collection facilities were notified if garbage collected contained considerable amounts of recyclables. Enforcement of the new policy commenced January 1st, 2006 and consequences differed according to residence type. Single-family residences' garbage containing significant amounts of recyclables was left uncollected with a tag instructing

the resident to separate the recyclables and upon doing so, the garbage and recyclables would then be collected the following week. Apartment, business, and property managers received up to two notices for violations of the policy before receiving a 50-dollar charge on their buildings' collection bill. Self haul recycling and disposal station customers are asked to separate recyclables at the time of inspection if not previously completed. Despite the consequences, curbside and other collection means are part of the utility and waste collection processes for all customers (Seattle Public Utilities, 2007i).

Summary

This chapter focused on the methodology for the study, which included discussion of the data collection process, data analysis techniques, and the description of context. The data collection involved gathering all enacted Seattle City Council ordinances related to recycling as well as recycling related electronic and paper-based educational materials used in Seattle. A content analysis was used to focus on the content within the policy data as well as within the electronic and paper-based educational materials. The content analysis used for the electronic and paper-based educational materials was conducted with the aid of four evaluators using an analysis tool developed by the researcher. The analysis tool included criteria drawing from both visual and instructional design principles. To ensure the evaluators were consistent, an inter-rater reliability check was performed before the data was analyzed using both qualitative and quantitative techniques. Finally, the description of the context describes

the setting in which this study draws its focus and revisits the background in which this study is based.

CHAPTER 4. RESULTS

The goal of this study is to explore the policy approaches and the role of education within the Seattle, Washington residential recycling program. The research questions posed for this study are as follows:

What approaches has Seattle, Washington taken to develop their residential recycling program?

a) What are the major policy approaches used (ex.: local government legislature and community constructed formal and informal practices)?
b) What is the role of education within the Seattle recycling program (including an instructional analysis of educational activities)?

The results are presented in the same order as sub-questions a) and b), first covering the results of the policy analysis, followed by the results of the analysis on the educational materials. Each respective topic also features a section dedicated to interpretive discussion following the findings.

Policy Analysis

Sixty-one policies produced between 1974 and 2007 by the Seattle City Council related to recycling were examined in a content analysis to answer the question "What are the major policy approaches used?" For example, on August 8, 1988, the Seattle City Council enacted a resolution (policy) to direct "…the Solid Waste Utility to develop

policies and practices to encourage, increase, and or require recycling, waste reduction, and the purchase of products made with recycled materials for use by City government and contractors with City government" (Seattle City Clerk's Office, 2007). In another example, Seattle City Council lays the groundwork for the implementation of a recycling service. The resolution chose "…adopting policy guidelines for a City-wide curbside recycling program and requesting additions to the proposed contracts with Recycling Seattle, Inc. and Eastmont Development, Inc. for collecting recyclable material from homes" (Seattle City Clerk's Office, 2007). The first of these two examples reveal a policy enacted by the local government of Seattle to act on measures within its own domain, while the second example provides evidence of how the city of Seattle was preparing the footing for its citizens to do the same.

Within the 61 policies, 41 topics were derived from the content analysis. It is important to note that nearly every policy contained multiple topics, therefore explaining how the numbers of topics outweigh the number of policies. After applying constant comparison techniques and refining, 41 topics became eight, and finally six after further review. The final six topics are listed below including explanations for each of them:

Administration:	Policies created concerning city government facilities, proposals, contracts, and departments.
Changes to Existing Policy:	Policy amendments created to allow for compatibility with new policies and or services.
Education:	Policies pertaining to education of the public (refuse, recycling service subscribers, and the general public) and/or within Seattle public schools.
External Relations:	Policies created to authorize working relationships both in and external to Seattle such as state, government, and philanthropic organizations such as the United States Environmental Agency (USEPA), Washington State Department of Ecology (WSDOE), Washington State Energy Office (WSEO), and the Ford Foundation.

Finance:	Policies financial in nature related to the management of grants, budgets, funds, and utility rates, taxes, and fees.
Operations:	Policies related to collection, processing, land-use, zoning, and licenses for recycling.

Table 1. Seattle's six major policy areas revealed following the policy analysis.

Upon examining 61 policies produced by the Seattle City Council, three major policy approaches were revealed. The majority of occurrences within the data are the topics "Operations," "Administration," and "Finance." The topic "Operations" had 44 occurrences, "Administration" had 42, and "Finance" had 34 making it the third largest topic.

The three topics "Changes to Existing Policy," "External Relations," and "Education" all had fewer occurrences than the "Operations," "Administration," and "Finance" topics. The "Changes to Existing Policy" topic had 26 occurrences within the 61 policies compared to "External Relations" with 13. The topic with the lowest number of occurrences from the analysis was "Education" with six (see *Figure 1*).

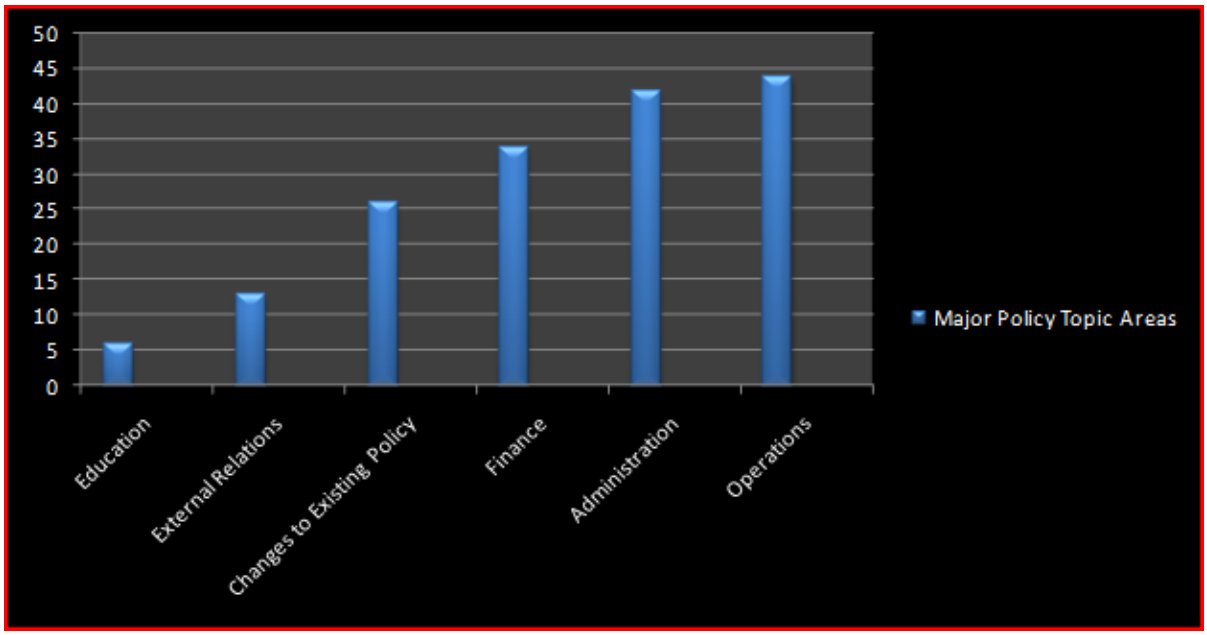


Figure 1. Major policy topic areas related to recycling created by Seattle City Council.

Discussion

Of 61 policies, "Operations," "Administration," and "Finance" were the most abundant topic areas within the policy data, reflecting Seattle's major policy approaches in maintaining and improving their program. The topic "Administration" includes the subcategories of city government facilities, proposals, contracts, and departments. The majority of these policies were in the form of contracts, proposals, and departments. "Operations" is composed of policies dealing with collection, processing, land-use, zoning, and licenses for recycling. "Finance" covers policies financial in nature related to the management of grants, budgets, funds, and utility rates, taxes, and fees.

The most significant and surprising finding in the analysis were the policies on education. Only six in all of 61 policies were related to education of recycling. The six

policies on education of recycling were implemented and acted on between the years 1989 and 1992, and were then abandoned thereafter as verified by the Senior Planning and Development Specialist of Seattle Public Utilities (SPU) (B. Stav, personal communication, November 1, 2007). The educational policies related to recycling helped to increase the amount of recyclables collected in these years and beyond. For example, data from SPU's 2007 Curbside Recycling Report (which excludes apartment collection totals) shows an annual increasing trend in tonnage collected from 1988 through 1999 (Seattle Public Utilities, 2007a) (see *Figure 2*).

How do we explain Seattle's success in recycling after policies relating to education were abandoned in 1992? The increasing trend in recyclable tonnage collected is evidence of strong policy in the areas of "Administration," "Operations," and "Finance." There were no official policies enacted to support education for recycling after 1992, revealing that the policies enacted in the six topic areas as a collective whole were imperative for SPU to continue its own educational efforts related to recycling.

An example is found in the critical policy passed in July of 2003. This policy fits under the "Operations" topic where the Seattle City Council passed a policy prohibiting recyclable materials from disposal in commercial, residential, and self-haul garbage (Seattle City Clerk's Office, 2007). Data from SPU's 2007 Curbside Recycling Report shows that in 1988 when Seattle began its curbside recycling program, the city collected 23,946.2 tons that year. By the year 1999, Seattle's annual tonnage was 62,835.2 tons of recyclables, but from 2000 to 2003, the annual tonnage of recyclables collected declined. In 2003, when Seattle City Council took action and enacted the

policy prohibiting recyclable materials from disposal in commercial, residential, and self-haul garbage, the effects were immediate (see *Figure 2*) and the SPU Curbside Recycling Report data shows an increasing trend in annual tonnage collected beginning in years 2004 through 2006 (Seattle Public Utilities, 2007a).

While this study does not consider social behavior, perceptions, or convenience, Seattle's major policy approaches as seen through "Operations," "Administration," and "Finance," exhibit parallels with the literature on recycling. Garcés, Lafuente, Pedraja, and Rivera (2002) suggest that social behavior responds to public authorities when programs are enforced and the perceived benefit is higher when the action (recycling) is required of the citizen and is convenient. Garcés et al.'s study further reveals that "… the perception of good program management by the local authorities exercises a positive effect on the recycling behavior of citizens" (p. 386) and concludes by noting that citizens will participate in a program implemented by authorities if they perceive the program is effective and efficient and addresses a known issue.

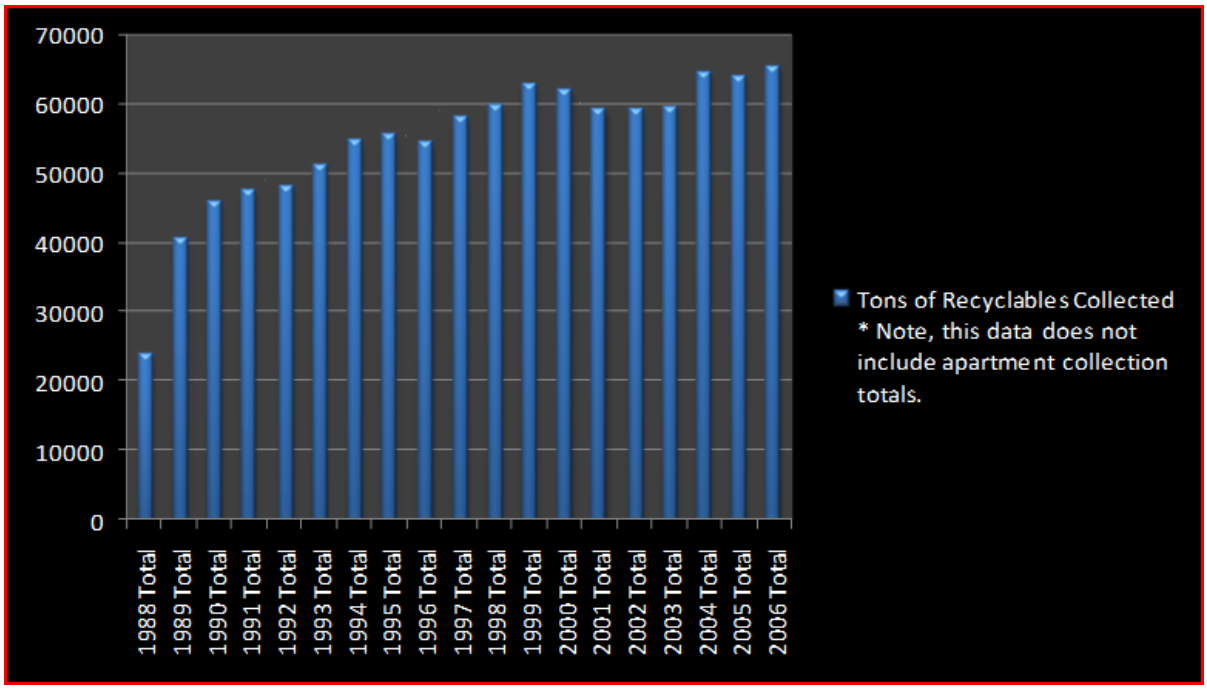


Figure 2. Total tonnage of recyclables collected by the Seattle Public Utilities per year excluding apartment collection totals.

Educational Materials

A content analysis was conducted to answer the question "what is the role of education within the Seattle recycling program?" Four evaluators with instructional design experience were asked to assess the educational value of eight documents and materials Seattle uses to informally educate its community about recycling. The evaluators were given an analysis tool designed by the researcher, which draws upon educational principles from an instructional design perspective to assess the documents and materials (see *Appendix D* for more information on each document and or material). Additionally, three hours spent with the evaluators in conference calls allowed for discussion and elaboration on their rationale behind their scores.

Following the ratings breakdown, the first of eight documents and materials features an analysis section, which includes evaluator comments for the 12 questions posed in the analysis tool (see *Appendix A*) based on four areas: instructional value of the materials, the appropriateness of the materials to the task and audience, ease of use, and motivational design. Following the first document analysis, the remaining seven are presented with ratings data only. For the full analysis of the remaining seven documents and materials, see *Appendix D*. The researcher also participated in analyzing the electronic and paper-based educational materials, but after further review, the researcher decided to withdraw his analysis. By removing the researcher's analysis, bias was removed as a result of the researcher's closeness to the materials and related subjects involved with the study.

Each document is presented and includes a table defining its overall document score out of a possible 60, and an inter-rater reliability score (for a complete breakdown of each educational document, see *Appendix D*). The overall mean document score average for all eight documents and materials was 49.81 with a high of 57.25 and a low of 45. The average mean for the documents and materials was equivalent to rating a four on the five-point rating scale found within the analysis tool, where one is the weakest and five is the strongest. This rating is above the median point of the scale.

The inter-rater reliability score pertains to the evaluators' individual ratings for all questions in each document. Inter-rater reliability scores were calculated using a Microsoft Excel spreadsheet designed to properly compile a generalized Kappa statistic

for use with multiple raters (King, 2004) (see *Appendix C*). Acceptable values for Kappa are depicted below in *Figure 4*. The Kappa statistic for all documents had a mean of 0.69, a high of 0.79, and a low of 0.52. The Kappa mean of 0.69 shows substantial agreement between the evaluators. The results following the material analysis are presented below:

κ	Interpretation
< 0	Poor agreement
0.0 - 0.20	Slight agreement
0.21 - 0.40	Fair agreement
0.41 - 0.61	Moderate agreement
0.61 - 0.81	Substantial agreement
0.81 - 1.00	Almost perfect agreement

Figure 3. Acceptable values for Kappa.

SPU Recyclable Materials Poster

The SPU Recyclable Materials poster features large green and red sections with images of what is and is not acceptable recycling within Seattle's recycling program. A more detailed list of categorized materials (such as paper and glass) is also listed in bulleted form to provide a written description for readers. Finally, the poster includes a 'question and answer' section addressing the community's most common question followed by contact information for further questions not addressed in the material. For a complete review of the evaluated poster's scores, see *Table 2*.

Figure 4. Seattle Public Utilities' Recyclable Materials poster. See *Appendix D* to view the material in full.

SPU Recyclable Materials Poster			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	4	3	3.75
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	3	3	3
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	3	3.75
4. Is the material easy to read (and or navigate)?	5	4	4.75
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	5	4	4.75
7. Does the material at any point guide or offer feedback to learners?	3	3	3
8. Is the design of the material appealing to the intended audience?	4	4	4
9. Can the material grab the intended audience's attention and keep the learners engaged?	3	3	3
10. Is the instructional experience satisfying?	3	3	3
11. Does the design of the material convey a message the users can safely invest in?	4	4	4
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	3	3	3
Document Score	52	38	45
Document Inter-Rater Reliability Score (κ)	0.74		

Table 2. Seattle Public Utilities' Recyclable Materials Poster's respective analysis ratings, document score, and document inter-rater reliability score (κ).

The Recyclable Materials poster analysis revealed a mean document score of 45, where the low was 38, and the high was 52. The inter-rater reliability for the evaluators' individual ratings was 0.74, which is a substantial agreement. For the full analysis, see *Appendix D.*

SPU Recycling Tips for Apartments and Condominiums Video

The SPU Recycling Tips for Apartments and Condominiums video features a host along with recycling-themed characters that assist the host to review the proper recycling methods covered within the video. The video clearly identifies the target audience as apartment dwellers and condominium residents and demonstrates the proper method of recycling when living in these environments. For a complete review of the evaluated video's scores, see *Table 3,* and or *Appendix D* for the evaluators' feedback related to this video.

Figure 5. Seattle Public Utilities' Recycling Tips for Apartments and Condominiums video. For additional images, see *Appendix D.*

SPU Recycling Tips for Apartments and Condominiums Video			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	4	4.25
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	4	4
4. Is the material easy to read (and or navigate)?	4	4	4
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	3	3	3
7. Does the material at any point guide or offer feedback to learners?	4	4	4
8. Is the design of the material appealing to the intended audience?	4	4	4
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	4	4
10. Is the instructional experience satisfying?	4	3	3.25
11. Does the design of the material convey a message the users can safely invest in?	5	4	4.5
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	4	4	4
Document Score	50	48	49
Document Inter-Rater Reliability Score (κ)	0.79		

Table 3. Seattle Public Utilities' Recycling Tips for Apartments and Condominiums video's respective analysis ratings, document score, and document inter-rater reliability score (κ).

The Recycling Tips for Apartments and Condominiums Video's mean document score was 49, where the low was 48, and the high was 50. The inter-rater reliability for the evaluators' individual ratings was 0.79, which is a substantial agreement. For the full analysis, see *Appendix D.*

SPU Recycling I.Q. Game

The SPU Recycling I.Q. Game is an interactive Flash-based game played within a web browser allowing the user to practice recycling drawing from their knowledge on the subject. Users are prompted to select a difficulty level and recycling-themed character as a partner before the game begins. Once the game begins, users are presented with a variety of items that quiz the user's knowledge by requiring them to place the item in either the appropriate recycling bin, or the trash bin. Depending on the user's selection, the game provides feedback based on the user's actions. For a complete review of the evaluated game's scores, see *Table 4*, and or *Appendix D* for the evaluators' feedback related to the game.

Figure 6. Seattle Public Utilities' Recycling I.Q. Game. For additional images of the Recycling I.Q. Game, see *Appendix D*.

SPU Recycling I.Q. Game			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	3	3	3
4. Is the material easy to read (and or navigate)?	4	4	4
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	4	4	4
7. Does the material at any point guide or offer feedback to learners?	5	5	5
8. Is the design of the material appealing to the intended audience?	3	3	3
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	3	3.5
10. Is the instructional experience satisfying?	4	3	3.5
11. Does the design of the material convey a message the users can safely invest in?	5	5	5
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	3	3	3
Document Score	50	47	48.75
Document Inter-Rater Reliability Score (κ)	0.77		

Table 4. Seattle Public Utilities' Recycling I.Q. Game's respective analysis ratings, document score, and document inter-rater reliability score (κ).

The recycling game's mean document score was 48.75, where the low was 47, and the high was 50. The inter-rater reliability for the evaluators' individual ratings was 0.77, which is a substantial agreement. For the full analysis, see *Appendix D.*

SPU At Your Service Newsletter

The Seattle Public Utilities At Your Service Newsletter is a community newsletter that covers water, drainage, wastewater, and solid waste utility services. The newsletter contains tips for winterizing your home both indoors and outdoors, how the city is responding to drainage and wastewater management issues, and other topics such as service rates and garbage collection during wintery conditions. For a complete review of the evaluated newsletter's scores, see *Table 5,* and or *Appendix D* for the evaluators' feedback related to the newsletter.

New Rates in 2008

The Seattle City Council has approved new water, drainage, wastewater and garbage rates effective January 1, 2008 that will finance critical capital projects and encourage stewardship of the city's environment. Projects include remodeling the city's aging recycling and disposal stations, water quality improvements, a flood prevention project in Madison Valley, and expanded recycling programs.

	2007 Typical Residential Bill per month	2008 Typical Residential Bill per month
Water[1]	$22.97	$24.62
Sewer[1]	$38.74	$40.30
Drainage[2]	$11.83	$13.74
Solid Waste[3]	$21.55	$23.00

[1] *Typical residential bills assume monthly water usage of 5.5 ccf (hundred cubic feet) for water service and 5.2 ccf for sewer service.*

[2] *Drainage fees are billed for SPU as a separate line item on King County's annual property tax statements. In 2007 all residential customers pay the same fee. The typical bill for 2008 is an average bill. Residential property owners with parcels less than 5,000 square feet will pay less than they did in 2007.*

[3] *Typical residential garbage service is a 32 gallon garbage container and yardwaste service.*

The new drainage rates include a major update and re-design of the drainage rate structure, aimed at improving rate equity among customers. The new rates will more accurately reflect customers' impacts on the drainage system. For more information on drainage services and rates, please visit our website at **www.seattle.gov/util** and click on "Drainage & Sewer."

Snow/Ice Garbage Collections

Garbage and recycling pickups can be delayed during snowy and icy weather. If your garbage is not picked up during a storm, leave it out to be collected the following day. If weather still prevents collection, put all of your items out the next week on your regular collection day. You can report a missed garbage, recycling or yard waste collection after 6 p.m. on the day it was missed or within two working days by calling **(206) 684-3000** or visiting **www.seattle.gov/util/Services/Garbage**.

Stay Green This Holiday Season

Seattle residents may recycle trees and greens in their yard waste containers or free of charge at the city's North and South Recycling and Disposal stations between Dec. 26, 2007 and Jan. 13, 2008. Trees should not exceed eight feet tall and must be free of decoration. Trunks should not exceed four inches in diameter. The stations will accept up to three trees per vehicle for free. Find station hours at **www.seattle.gov/util/Services/Garbage** or by calling **(206) 684-3000**.

Yard waste subscribers can put trees and greens out on their regular yard waste collection day. Cut trees into sections, six feet long or shorter, with branches trimmed to less than four feet to fit into the collection trucks. Bundle each section with sisal string or twine (not plastic). Decorated or flocked trees are not recyclable.

Adopt a Drain and Prevent Flooding

Falling leaves and increased rains can block storm drains and lead to flooding. You can help prevent flooding in your neighborhood by volunteering to "Adopt-a-Drain" and keep storm drains clear of leaves and other debris.

"Adopt-a-Drain" volunteers commit to keeping one or more drains free of leaves and debris. Seattle Public Utilities will support volunteers with gloves, bags, brooms, rakes, and safety vests, and can also help with disposing of leaves.

To "Adopt a Drain," call **(206) 684-7647**, leave your name, phone number, and address, and we will send you everything you need to get started. Get more information at **www.seattle.gov/util**.

@ Your Service is published bimonthly by the Seattle Public Utilities Customer Service Branch, 700 5th Ave., Suite 2777; PO Box 34027; Seattle, WA 98124-4027. @ Your Service is also available at: www.seattle.gov/util
@ Su Servicio se encuentra ahora disponible en español en www.seattle.gov/util/About_SPU/News/.
phục vụ tiếng Việt sẵn sàng giúp đỡ tại www.seattle.gov/util/About_SPU/News.

Figure 7. Seattle Public Utilities' At Your Service Newsletter. To view the material in full, see *Appendix D*.

SPU At Your Service Newsletter			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	4	4	4
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	5	4	4.75
4. Is the material easy to read (and or navigate)?	5	5	5
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	4	3	3.75
8. Is the design of the material appealing to the intended audience?	4	3	3.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	4	4
10. Is the instructional experience satisfying?	5	4	4.25
11. Does the design of the material convey a message the users can safely invest in?	5	4	4.75
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	3	2	2.75
Document Score	54	50	51.75
Document Inter-Rater Reliability Score (K)	0.58		

Table 5. Seattle Public Utilities' At Your Service Newsletter's respective analysis ratings, document score, and document inter-rater reliability score (K).

The at your service newsletter's mean document score was 51.75, where the low was 50, and the high was 54. The inter-rater reliability for the evaluators' individual ratings was 0.58, which is a moderate agreement. For the full analysis, see *Appendix D*.

SPU CurbWaste and Conserve Newsletter

The Seattle Public Utilities CurbWaste and Conserve Newsletter features tips and programs available to community members within Seattle. The newsletter contains helpful information such as how to manage residential storm drains during intense rain, a question and answer section for commonly asked questions regarding recycling services offered within Seattle, and upcoming community events amongst other content. The newsletter also uses a variety of colors to outline the many separate sections and subjects included within the material. For a complete review of the evaluated newsletter's scores, see *Table 6,* and or *Appendix D* for the evaluators' feedback related to the newsletter.

Dear Evelyn:
What sort of container should I use to store my kitchen scraps before I put them in my food and yard waste cart?

We've received dozens of wonderfully creative and useful ideas for kitchen food scrap containers from our customers, including licorice and margarine tubs, store-bought kitchen compost buckets, and plastic milk jugs with their necks removed. Another suggestion is to use BioBags, which were recently approved by Cedar Grove Composting as 100% biodegradable and 100% compostable.

You can find these and other customer suggestions at www.seattle.gov/util and type in "kitchen container" or write Ask Evelyn for a written copy at the address below.

Many customers suggested using milk cartons. Unfortunately, they and other slick, shiny paper containers are polycoated with a plastic that does not break down into compost. The Cedar Grove facilities that turn your food waste into compost are being flooded with so many polycoated and waxed paper containers, their screens are getting clogged, with the material ending up in the landfill.

For now, milk cartons can still be used to store your kitchen scraps and placed in the yard and food waste cart, but I suggest exploring other alternatives to store your food scraps. Polycoated paper products that are empty should be rinsed out and put in recycling with your paper, bottles, jars and tubs.

Evelyn:
Can I throw my old energy-efficient light bulb in the garbage?

Fluorescent light bulbs and tubes are a great way to save energy and cut greenhouse gas emissions. They use about 75% less electricity than incandescent bulbs, and last up to 10 times as long. However, fluorescents contain mercury, and are prohibited in the garbage.

Good news! Local stores will recycle your used fluorescent lamps and bulbs. Visit www.takeitbacknetwork.org for a listing of Take It Back Network locations near you. Some stores may charge a fee.

Please send your recycling questions, tips or suggestions to
Ask Evelyn, Seattle Public Utilities,
PO Box 34018,
Seattle, WA 98124-4018
or e-mail Evelyn the Envelope at askevelyn@seattle.gov

This information can be made available on request to accommodate people with disabilities and those who need language translation assistance.
Call Seattle Public Utilities at (206) 684-3000. TDD telephone number is (206) 233-7241.
Please recycle this newsletter or pass it on to a friend. Printed on recyded paper made out of 100% post-consumer waste.

Figure 8. Seattle Public Utilities' Recycling CurbWaste and Conserve Newsletter. To view the material in full, see *Appendix D*.

SPU CurbWaste and Conserve Newsletter			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	5	4	4.75
4. Is the material easy to read (and or navigate)?	4	4	4
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	5	5	5
8. Is the design of the material appealing to the intended audience?	5	4	4.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	5	5	5
10. Is the instructional experience satisfying?	5	4	4.75
11. Does the design of the material convey a message the users can safely invest in?	5	5	5
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	4	4	4
Document Score	58	55	57.25
Document Inter-Rater Reliability Score (K)	0.78		

Table 6. Seattle Public Utilities' CurbWaste and Conserve Newsletter's respective analysis ratings, document score, and document inter-rater reliability score (K).

The CurbWaste and Conserve newsletter's mean document score was 57.25, where the low was 55, and the high was 58. The inter-rater reliability for the evaluators' individual ratings was 0.78, which is a substantial agreement. For the full analysis, see *Appendix D*.

SPU Recycling Ordinance Flyer

The Recycling Ordinance Flyer details Seattle's new ordinance prohibiting recyclables from the trash. It depicts the Seattle "Recyclettes" (recycling-theme based characters) as "wanted" similar to 'wanted' posters from the late 19th century America. The flyer also provides contact information for readers with questions.

Figure 9. Seattle Public Utilities' Recycling Ordinance Flyer.

SPU Recycling Ordinance Flyer			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	4	4.25
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	4	4.75
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	4	4
4. Is the material easy to read (and or navigate)?	5	5	5
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	4	3	3.25
8. Is the design of the material appealing to the intended audience?	5	4	4.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	5	5	5
10. Is the instructional experience satisfying?	5	4	4.75
11. Does the design of the material convey a message the users can safely invest in?	4	4	4
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	2	2	2
Document Score	53	50	51.5
Document Inter-Rater Reliability Score (κ)	0.59		

Table 7. Seattle Public Utilities' Recycling Ordinance Flyer's respective analysis ratings, document score, and document inter-rater reliability score (κ).

The Recycling Ordinance Flyer's mean document score was 51.5, where the low was 50, and the high was 53. The inter-rater reliability for the evaluators' individual ratings was 0.59, which is a moderate agreement. For the full analysis, see *Appendix D.*

SPU Sample Letter to Tenants Notice

The Sample Letter to Tenants Notice is a sample notice that building managers can use to notify their tenants of new rules related to recycling. It is a plain letter describing some of the costs of managing solid waste in Seattle, and the consequences if the new policies are not followed. The notice provides the reader with contact information for those who may have questions. For a complete review of the evaluated notice's scores, see *Table 8,* and or *Appendix D* for the evaluators' feedback related to the notice.

*****New Building Recycling Rules*****

Dear Tenant,

Seattle has a well-deserved reputation as a recycling city. However, Seattle spends more than $26 million every year to send 920 million pounds of garbage to a landfill, where it will sit for thousands of years. About 25% of Seattle's garbage is still made up of recyclable items such as paper, cardboard, cans and bottles.

The City of Seattle recently passed an ordinance that requires all businesses and residences (including apartments, townhouses and condominiums), to recycle. Keeping recyclables out of the garbage will save Seattle residents as much as $2 million each year and keep future garbage bills low.

Ordinance 121372 states:

> "As of January 1, 2005, all residents…shall separate paper, cardboard, glass and plastic bottles and jars, and aluminum and tins cans for recycling; and no paper, cardboard, glass or plastic bottles and jars and aluminum or tin cans shall be deposited in the garbage."

Beginning in January 2006, if a garbage container has significant amounts of recyclables (more than 10% by volume), a $50 surcharge can be added to the account garbage bill.

Let's not waste a good thing. We appreciate your cooperation in putting all of your recyclable paper, cardboard, cans and bottles in recycling containers. Food-soiled paper is not recyclable.

Our recycling containers are located at _____
Please refer to the recycling information posted near those locations.

If you have questions about recycling, you can call **206-RECYCLE** or visit **www.seattle.gov/util/Services/Recycling** for information.

This recycling ordinance benefits all of us. I would be glad to talk with you if you if have questions about our building's recycling system. Thank you for your help!

Sincerely,

Apartment Manager Name

Figure 10. Seattle Public Utilities' Sample Letter to Tenants Notice.

SPU Sample Letter to Tenants Notice			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	4	4
4. Is the material easy to read (and or navigate)?	5	5	5
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	3	2	2.75
7. Does the material at any point guide or offer feedback to learners?	4	4	4
8. Is the design of the material appealing to the intended audience?	3	2	2.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	3	3.75
10. Is the instructional experience satisfying?	4	3	3.25
11. Does the design of the material convey a message the users can safely invest in?	4	4	4
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	4	4	4
Document Score	50	45	48.25
Document Inter-Rater Reliability Score (κ)	0.73		

Table 8. Seattle Public Utilities' Sample Letter to Tenants Notice's respective analysis ratings, document score, and document inter-rater reliability score (κ).

The Sample Letter to Tenant Notice's mean document score was 48.25, where the low was 45, and the high was 50. The inter-rater reliability for the evaluators' individual ratings was 0.73, which is a substantial agreement. For the full analysis, see *Appendix D.*

SPU Yard and Food Collection Poster

The Yard and Food Collection poster features a colorful layout demonstrating examples of what is and is not acceptable in the yard waste collection bin. The material depicts these items in both images and text and offers the same poster in a variety of languages. The second page of the document includes advice and information on how to collect and process yard waste and food scraps for collection. For a complete review of the evaluated notice's scores, see *Table 9,* and or *Appendix D* for the evaluators' feedback related to the notice.

Figure 11. Seattle Public Utilities' Yard and Food Collection poster. To view the material in full, see *Appendix D*.

SPU Yard and Food Collection Poster			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	4	4.75
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	4	4.25
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	5	4	4.25
4. Is the material easy to read (and or navigate)?	3	3	3
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	3	3	3
8. Is the design of the material appealing to the intended audience?	5	4	4.25
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	3	3.75
10. Is the instructional experience satisfying?	5	4	4.25
11. Does the design of the material convey a message the users can safely invest in?	4	3	3.75
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	2	1	1.75
Document Score	48	46	47
Document Inter-Rater Reliability Score (κ)	0.52		

Table 9. Seattle Public Utilities' Yard and Food Collection poster's respective analysis ratings, document score, and document inter-rater reliability score (κ).

The Yard and Food Collection poster analysis revealed a mean document score of 47, where the low was 46, and the high was 48. The inter-rater reliability for the evaluators' individual ratings was 0.52, which is a moderate agreement. For the full analysis, see *Appendix D.*

The results following the content analysis featured a ratings breakdown for all eight educational documents and materials including data on the Kappa scores for each respective document. Using the analysis tool, these scores were compiled by the evaluators. The analysis tool features 12 questions based on four areas: instructional value of the materials, the appropriateness of the materials to the task and audience, ease of use, and motivational design. These questions were then rated on a five-point scale, one being the weakest and five the strongest. The scores generated by the analysis tool allowed the data to be quantified using descriptive statistics assisting the researcher in determining the role of education within Seattle.

Summary of Results

In answering the question, "What is the role of education within the Seattle recycling program (including instructional materials analysis and formal and informal educational activities)?" the role of education in Seattle related to the matter of its recycling program is multi-faceted, based in informal learning, and key to Seattle's continued success in waste-stream diversion. It is multi-faceted because of the various forms SPU attempts to communicate with their community. Education on how to recycle takes many forms from newsletters, posters, and online games targeted at

homeowners. Paper-based notices, posters, online games, and a video made available via both television and online target condominium and apartment dwellers within the community. The goals of the materials vary in the following ways:

- educating the community of what is and is not acceptable in Seattle's recycling collection program
- educating the community on which recyclables go in which container or bin
- educating the community on how to properly dispose of yard and food waste
- educating the community about Seattle's recycling ordinance (banning recyclables from trash)
- educating the community about community-based pro-environmental activities

Following the analysis, the document and or material with the highest Kappa score was the Recycling Tips for Apartments and Condominiums Video with 0.79, which was a substantial agreement. The mean document score for the video was 49 out of a possible 60. Questions one and five received the highest ratings out of the document's 12 questions based on a five-point scale, where five was the highest rating a category or question could receive. Question six received the lowest ratings for the document (all threes).

Question one for the Recycling Tips for Apartments and Condominiums Video asked the evaluators to assess the type of change the material intends to produce in the learners and further probes the evaluators to note the type of change that is sought to be instilled within the learner (either cognitive, or affective, or both). The feedback

from the evaluators all agreed the intended change for this document was both cognitive and affective. The video instructed apartment and condominium dwellers how to recycle properly. Question five asked the evaluators to assess the material's consistency in terms of language, use of illustrations, and visual design. The evaluators all agreed the video was highly consistent in its use of language and illustrations and visual design.

Question six received the lowest ratings for the video (all threes). The question asked the evaluators if the material was appealing visually. Two of the evaluators felt the characters with costumes portrayed in the video were too "cartoonish" and childish for adult viewers despite possibly being appealing for children. The other two evaluators disagreed, noting the characters were perceived as enjoyable and acceptable for both younger viewers and adults. Regardless of their acceptance of the "cartoonish" characters, the same two evaluators did not feel the characters (or any other visual aspect) warranted a higher than average rating. The evaluators all agreed on a rating of three for this particular question.

After the inter-rater reliability data had been compiled, the document with the lowest Kappa was the Yard and Food Collection poster with 0.52, which was a moderate agreement. The moderate Kappa statistic was due to minor disagreement in eight of the 12 questions. While there was not significant disagreement amongst the evaluators, eight of the 12 questions in the Yard and Food Collection document featured a rating where three evaluators had agreed on a particular rating; the fourth evaluator rated

those given questions either one lower or one higher thereby offsetting the Kappa score.

The mean document score for the poster was 47 out of a possible 60. Question six received the highest ratings out of the document's 12 questions based on a five-point scale, where five was the highest rating a category or question could receive. Question 12 received the lowest ratings for the document (all threes).

Question six for the Yard and Food Collection poster asked the evaluators to assess the material's visual appeal. The evaluators noted the material excelled at clearly indicating acceptable practices over a green background, and unacceptable practices over a red background. The use of illustrations along with the color-coded sections made the material easy to understand and visually appealing.

The evaluators used question 12 to assess whether the Yard and Food Collection poster communicated the users' participation as benefiting not only them, but also a larger audience. The question received the lowest ratings for the document (3 twos, and a one). While the material focuses on yard and food waste as it pertains to the recycling container and acceptable practices, the evaluators noted no wider implications as a result of their participation were made other than the compost being sold for mulch. The evaluators concluded by remarking on the document's lack of communication regarding the users' participation benefiting them or a larger audience.

Collectively, the overall mean document score average for all eight documents and materials was 49.81. The average mean for the documents and materials was equivalent to rating a four on the five-point rating scale found within the analysis tool,

where one is the weakest and five is the strongest. This rating is above the median point of the scale. The mean Kappa score was 0.69, showing a substantial agreement amongst the evaluators in relation to the ratings for the documents and materials.

It is clear from the materials evaluated that Seattle residents all have access to recycling bins and containers as provided by SPU, which increases the probability of participation and most importantly addresses the issue of convenience. One of the major themes in the literature on recycling is the agreement on the importance of how convenience factors into the success and participation in a municipal recycling program (Biswas, Licata, McKee, Pullig, & Daughtridge, 2000; Cleveland, Kalamas, & Laroche, 2005; Díaz, 2006; Díaz & Beerli, 2005; Ebreo & Vining, 2001; Feiock & Kalan, 2001; Jurin & Fortner, 2002; McCarty & Shrum, 2001).

In 2006, the cumulative citywide recycling collection total for apartments in Seattle was 19,159 tons (Seattle Public Utilities Apartment Recycling Report, 2006). As of the same date, the cumulative citywide recycling collection total for curbside pickup was 65,371 tons (Seattle Public Utilities Curbside Recycling Report, 2006). The United States Census Bureau's 2006 estimated housing populations show 134,524 owner-occupied housing units in Seattle versus 124,639 renter-occupied housing units. The overall estimated housing size (persons per household, which includes apartments) in Seattle was 2.08, and the average family size was 2.92 (United States Census Bureau, 2007b). Despite Seattle having nearly as many apartment dwellers as homeowners, the apartment dwellers recycled 46,212 tons less than homeowners did.

The Sample Letter to Tenants Notice, Recycle Ordinance Flyer, and Recycling Tips for Apartments and Condominiums Video educational materials directed at Seattle residents living in apartments demonstrates an effort by Seattle to increase apartment dwellers' participation level through education. Apartment complexes and buildings in Seattle all have large recycling collection dumpsters available to their respective residents. The only obstacle for apartment residents is the separation of their recyclables and bringing them to the large recycling dumpsters located near their building's trash dumpsters. This is a large contrast to homeowners as they have their own recycling containers thereby increasing convenience. Because of this difference, apartment dwellers may not see a tangible benefit in collecting, separating, and hauling their recyclables to their buildings' recycling dumpsters. The literature on the matter is consistent. McCarty and Shrum (2001) argue that convenience is a predictor of recycling behavior. Lansana (1992) indicated that recycling behavior is linked to convenience. McCarty and Shrum (2001) found that when contrasting importance and convenience, the two interconnect on three dimensions related to specific beliefs and behaviors.

> First, the importance of recycling relates to the benefits of engaging in the behavior (e.g., a cleaner environment), whereas inconvenience focuses on the costs (e.g., the time required to prepare materials for collection). Second, the importance of recycling is a long-term consideration, but inconvenience is primarily short-term in nature. …the benefits of the environment will generally only be realized in the future, and therefore people may not see these positive results in any immediate way, whereas the costs to the individual in terms of engaging in the behavior are relatively immediate. Third, the two belief constructs differ in their level of abstraction. Because the importance of recycling relates to long-term rewards for the environment and society, these beliefs tend to be more abstract and general in nature than beliefs about the inconvenience of

> recycling, which focus on immediate costs to the individual and tend to be more concrete and specific (p. 95).

Interestingly, the Recycling Ordinance Flyer received a rating of two out of five amongst the evaluators for the question, "Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?" All four evaluators found the material communicates a warning or threat in accordance with city legislation, which fines residents for not separating recyclables from their trash. While the warning of a fine is motivational in nature, the material does nothing to communicate the participant's participation as benefiting them or a larger audience.

Summary

The policy analysis revealed six major topic areas within the policy data: Administration, Changes to Existing Policy, Education, External Relations, Finance, and Operations. Operations, Administrations, and Finance were the most abundant topic within the policy data, reflecting Seattle's major policy approaches in maintaining and improving their recycling program. Their major policy approaches also exhibit parallels with the literature on recycling regarding perceptions, convenience, and behavior. The average mean for the documents and materials was equivalent to rating a four on the five-point rating scale found within the analysis tool, where one is the weakest and five is the strongest. This rating is above the median point of the scale. The mean Kappa for all documents showed a substantial agreement. The data reveals Seattle's recycling program to be multi-faceted, based in informal learning, and key to Seattle's continued success in waste-stream diversion.

CHAPTER 5. CONCLUSIONS & DISCUSSION

The aim of this study is to promote effective recycling practices across communities in the United States through an analysis of the policy and educational approaches within the Seattle, Washington residential recycling program. A summary of the results from this study is followed by a list of recommendations for communities wishing to implement or bolster their recycling program. Finally, the chapter concludes with limitations and future study recommendations.

The following research questions are addressed:

1) What approaches has Seattle, Washington taken to develop their residential recycling program?
    a) What are the major policy approaches used (ex.: local government legislature and community constructed formal and informal practices)?
    b) What is the role of education within the Seattle recycling program (including instructional materials analysis and outreach activities – formal and informal educational activities)?

Conclusions

To answer the question "What are the major policy approaches used?," 61 policies produced by the Seattle City Council related to recycling and the city of Seattle were analyzed. Within the 61 policies, six topics were developed. The three topics

"Operations," "Administration," and "Finance" contained the majority of occurrences within the policy data. The three topics "Changes to Existing Policy," "External Relations," and "Education" all had fewer occurrences within the data revealing Seattle's major policy approaches focused in the areas of "Operations," "Administration," and "Finance."

Only six in all of 61 policies were related to education of recycling. The six policies on education of recycling were implemented and acted on between the years 1989 and 1992, and were then abandoned thereafter (B. Stav, personal communication, November 1, 2007). Data from SPU's 2007 Curbside Recycling Report (which excludes apartment collection totals and only refers to homeowners) shows an annual increasing trend in tonnage collected during between the years of 1989 through 1999.

From 2000 to 2003, the annual tonnage of recyclables collected declined. In 2003, Seattle City Council took action and enacted a policy, fitting under the topic "Operations," prohibiting recyclable materials from disposal in commercial, residential, and self-haul garbage. The effects were immediate and the SPU Curbside Recycling Report data shows an increasing trend in annual tonnage collected beginning in years 2004 through 2006 (Seattle Public Utilities, 2007a).

In answering the question, "What is the role of education within the Seattle recycling program (including instructional materials analysis and formal and informal educational activities)?" a content analysis was conducted using four evaluators. The researcher also participated in the analysis, but withdrew his analysis removing bias as

a result of the researcher's closeness to the materials and related subjects involved with the study.

The materials were analyzed based on four areas: instructional value of the materials, the appropriateness of the materials to the task and audience, ease of use, and motivational design. Each document and or material included a table defining its analysis scores, overall document score, and inter-rater reliability score. Inter-rater reliability scores were calculated to produce a generalized Kappa statistic for use with multiple raters. The Kappa statistic for all documents had a mean of 0.69, where the high was 0.79 for the Recycling Tips for Apartments and Condominiums video, and the low was 0.52 for the SPU Yard and Food Collection poster. The Kappa mean of 0.69 shows substantial agreement between the evaluators. The average mean for all eight materials and document scores was 49.81 out of 60 possible points, where the low was 45 for the SPU Recyclable Materials Poster, and the high was 57.25 for the SPU CurbWaste and Conserve Newsletter. The average mean for the documents and materials was equivalent to rating a four on the five-point rating scale found within the analysis tool, where one is the weakest and five is the strongest. This rating is above the median point of the scale. These findings show the documents and materials have a strong educational purpose and their role is of a supplemental nature to encourage and strengthen Seattle's policy efforts.

Discussion of Findings

The policy analysis revealed Seattle's major policy approaches focused in the areas of three topics, "Operations," "Administration," and "Finance." It is clear strong policy approaches in the three major policy topics benefited the Seattle recycling program as evidenced by the increasing trend in recyclable tonnage collected after 1992 (Seattle Public Utilities, 2007a) when education-based policies ceased to remain in effect (B. Stav, personal communication, November 1, 2007). The trend is briefly interrupted between the years 2000 and 2003, but new policy prohibiting recyclables from the trash restored the previous upward trend in recyclables collected beginning in 2004 and continues through 2006 demonstrating Seattle's use of policy as a catalyst of progress. No official policies have been enacted to support education for recycling since 1992, showing Seattle's focus in the areas of "Administration," "Operations," and "Finance" has been imperative for Seattle to continue its educational efforts related to recycling.

By implementing policies such as prohibiting recyclables from the trash, Seattle has lifted a burden from inner-city organizations such as Seattle Public Utilities (SPU) allowing them to apply their efforts and resources in other areas. For example, instead of asking city residents to recycle, SPU creates educational materials focusing on instructing city residents how and where to recycle. Further, SPU created these educational documents and materials without policies requiring their production.

Seattle's efforts on creating educational materials to sustain and encourage participation in their community-recycling program are paying dividends from an

educational standpoint. The results of the content analysis reveal that educational documents and materials have a strong educational purpose. The mean Kappa of 0.69 generated from all of the materials and documents shows substantial agreement amongst the evaluators. When coupled with the average mean for the documents and materials which were equivalent to rating a four on the five-point rating scale found within the analysis tool, where one is the weakest and five is the strongest, it is safe to conclude these educational documents and materials are well designed and developed from an instructional design viewpoint.

Recommendations

These recommendations are for communities looking to bolster and/or implement their own recycling program. Below the recommendations are split into two sections: policy and education.

Policy-Related Recommendations

As in the case of Seattle and their public utilities department, using community-led policy as a tool for leadership can be a boon in easing demands on inner-city organizations (Majone, 1989). While not every community may have the resources like that of Seattle, their major policy approaches in the areas of "Administration," "Operations," and "Finance" provide clues as to how Seattle prioritizes and coordinates the majority of their program through these policy fields. For clarification, the aforementioned topic areas' subcategories are listed:

"Administration" – Policies created concerning city government facilities, proposals, contracts, and departments.

"Operations" – Policies financial in nature related to the management of grants, budgets, funds, and utility rates, taxes, and fees.

"Finance" – Policies related to collection, processing, land-use, zoning, and licenses for recycling.

Communities looking to strengthen or augment their current practices could look to the above policy areas as examples when considering focal points for policy options to fit their own community's needs.

Education-Related Recommendations for Communities in General

In creating informal educational documents and materials for the community's use, sound instructional and visual design principles need to be followed. A good place to begin is within the areas identified by the evaluators from the content analysis. Further, conducting a needs, task, and instructional analysis can greatly improve the implementation of both instructional and visual design principles.

Seattle had 61 policies related to recycling alone! Communities looking to implement or improve their recycling program should look at local policy as an option to strengthen their recycling program. Further, having a thriving community deeply involved in community-led policies are more likely to reflect the citizenry's desires than policies descending from city government.

Education-Related Recommendations for Seattle

One of the reoccurring issues within most of the documents and materials designed by Seattle was communicating the users' participation as benefiting not only them, but also a larger audience. For Seattle, the benefits of participating in the communities' recycling program are many, but those benefits are not always tangible to many citizens (McCarty and Shrum, 2001). Making a clear distinction within the materials of how citizens' participation benefits them and their community may help to broadcast a message of participation that transcends local policy requiring them to do so.

The above recommendation is a 'large impact' recommendation where the goal is a 'global effect.' For example, instead of changing some of the writing within a document or given material (having 'limited effect'), changing the entire format of the document will have a greater effect (Rubin, 1994). The recommendation also speaks to the idea of what Rubin calls "buy-in." Having citizens understand how their participation benefits not only them, but also their community requires buy-in on the part of those responsible for creating the educational materials. Rubin (1994) writes, "Recommendations are only as good as the degree to which they are embraced by the people who must implement them" (p. 285).

Limitations

The number of participants involved in this study as evaluators was limited to four, thus having more participants could have benefited the study. The content

analysis of the educational materials could also have benefited from a broader range of instructional design experts such as those currently employed in the field, as opposed to graduate school. None of the evaluators participating in this study were practicing professionals in the field of instructional design (of educational documents), despite having experience creating these types of documents before and while attending graduate school.

The questions found in the analysis tool are fundamentally "yes" and "no" type questions. While the evaluators elaborated numerous times on various questions, the researcher was forced to probe for additional feedback on many occasions to better understand the critique or rating a particular question received. Restating questions to eliminate "yes" and "no" type questions would remedy the issue of abbreviated answers received from the evaluators.

Future Study

In an effort to benefit communities looking to bolster their recycling program both domestic and abroad, future study could focus on how the Seattle Public Utilities gauges whether their recycling education is effective and why. Understanding how Seattle determines which educational methods are effective, and how their instructional materials are developed would be beneficial research on the matter of community recycling.

Another area worthy of investigation would be the correlation of educational materials implementation and policy requiring recycling within Seattle. Understanding

whether policy, educational materials, or both have had an impact on recycling would prove useful to existing research on the subject. This study could also include the method(s) Seattle uses to fund its established and ongoing recycling efforts. These aspects of Seattle's recycling program could provide other communities with the insight needed to implement or improve their own recycling program.

REFERENCES

American Forest & Paper Association Recycling Awards. (2006). Retrieved March 03, 2007, from http://www.paperrecycles.org/recycling/industry_recognition/winners_2006.html

Anderson, J. (1976). *Psycholinguistic Experiments in Foreign Language Testing.* University of Queensland Press, St. Lucia.

Behn, R. (1981). Policy Analysis and Policy Politics. *Policy Analysis,* 7(2), 199-226.

Berelson, B. (1952). *Content analysis in communication research*. Illinois: Free Press.

Berger, I. E. (1997). The demographics of recycling and the structure of environmental behavior. *Environment and Behavior*, 29(4), 515-31.

Biswas, A., Licata, J. W. McKee, D., Pullig, C., & Daughtridge, C. (2000). The recycling cycle: an empirical examination of consumer waste recycling and recycling shopping behaviors. *Journal of Public Policy and Marketing*, *19*(1), 93-105.

Boldero, J. (1995). The prediction of household recycling of newspapers: the role of attitudes, intentions, and situational factors. *Journal of Applied Social Psychology*, *16*, 24-41.

Cleveland, M., Kalamas, M., & Laroche, M. (2005). Shades of green: linking environmental locus of control and pro-environmental behaviors. *Journal of Consumer Marketing*, *22*(4), 198-212.

Díaz, G. M. (2006). How to teach recycling at an advanced phase of diffusion. *Journal of Environmental Education*, *37*(4), 19-32.

Díaz, G. M., & Beerli, A. P. (2005). Recycling behavior: a multidimensional approach. *Environment and Behavior*, *37*(6), 837-860.

Dick, W., & Carey, L. (1985). *The systematic design of instruction.* Glenview, IL: Scott, Foresman. In Smith, P. L., & Ragan, T. J. (2005). *Instructional Design*. Hoboken: John Wiley & Sons.

Driscoll, M. P. (2000). *Psychology of learning for instruction.* Needham Heights, MA: Allyn & Bacon. In Smith, P. L., & Ragan, T. J. (2005). *Instructional Design*. Hoboken: John Wiley & Sons.

Dryzek, J. (1989). Policy Sciences of Democracy. *Polity,* 12(1), 97-118.

Ebreo, A., & Vining, J. (2001). How similar are recycling and waste reduction? Future orientation and reasons for reducing waste as predictors of self-reported behavior. *Environment and Behavior*, *33*(3), 424-448.

Feiock, R. C., & Kalan, L. G. (2001). Assessing the performance of solid waste recycling programs over time. *American Review of Public Administration*, *31*(1), 22-32.

Fischer, F. (1990). *Technocracy and the politics of expertise.* Newbury Park, CA: Sage.

Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2004). *Program evaluation: Alternative approaches and practical guidelines* (3rd ed.). Reading, MA: Addison-Wesley.

Garcés, C., Lafuente, A., Pedraja, M., & Rivera, P. (2002). Urban waste recycling behavior: antecedents of participation in a selective collection program. *Environmental Management*, *30*(3), 378-390.

Gaudart, R. (2006). Practical tools for zero waste: one small Canadian community is using common sense measures and financial incentives to eliminate waste by design. *Alternatives Journal*, *32*(1), 13.

Glaser, B.G., & Strauss, L. L. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Chicago: Aldine.

Hawkesworth, M. E. (1988). *Theoretical Issues in Policy Analysis.* Albany, NY: SUNY Press.

Holsti, O. (1969). *Content analysis for the social sciences and humanities*. Don Mills: Addison-Wesley Publishing Company.

Hopper, J. R., & Nielsen, J. M. (1991). Recycling as altruistic behavior: normative strategies to expand participation in a community recycling program. *Environment and Behavior*, *23*(3), 195-220.

Jennings, B. (1987). Interpretation and the Practice of Policy Analysis. In F. Fischer, and J. Forester (eds.), *Confronting Values in Policy Analysis.* Newbury Park, CA: Sage.

Jurin, R. R., & Fortner, R. W. (2002). Symbolic beliefs as barriers to responsible environmental behavior. *Environmental Education Research*, *8*(4), 373-394.

Keeves, J. P. (1997). *Educational research, methodology and measurement: An international handbook.* New York, N.Y. : Pergamon.

Kerlinger, F. R. (1986). *Foundations of Behavioral Research,* (2nd ed.). Holt, Reinhart, and Winston, New York.

King, J. (2004). *Calculating a Generalized Kappa Statistic for Use With Multiple Raters*. Retrieved, January 27, 2008 from http://www.ccitonline.org/jking/homepage/kappa.xls

Kweit, M. G., and Kweit, R. (1987). The Politics of Policy Analysis: The Role of Citizen Participation in Analytic Decision Making. In J. DeSario and S. Langton (eds.), *Citizen Participation in Public Decision Making.* Contributions in Political Science Number 158. New York: Greenwood Press.

Lansana, F. M. (1992). Distinguishing potential recyclers from non-recyclers: a basis for developing recycling strategies. *Journal of Environmental Education*, *23*, 16-23.

Lasswell, H. (1951). The Policy Orientation. In D. Lerner, and H. Lasswell, (eds.), *The policy sciences: Recent developments in scope and method.* Stanford, CA: Stanford University Press.

Livingstone, D. (2001). *Adults' informal learning: Definitions, findings, gaps and future research*. NALL Working Paper No.21. Toronto: OISE/UT. Retrieved on October 6, 2006, from http://www.oise.utoronto.ca/depts/sese/csew/nall/res/21adultsifnormallearning.htm

Majone, G. (1989). *Evidence, argument, and persuasion in the policy process.* New Haven, CT: Yale University Press.

Marsick, V. J., & Watkins, K. E. (2001). Informal and Incidental Learning. *New Directions for Adult and Continuing Education*, *89*(1), 25-34.

McCarty, J. A., & Shrum, L. J. (2001). The influence of individualism, collectivism, and locus of control on environmental beliefs and behavior. *Journal of Public Policy and Marketing*, *20*(1), 93-104.

McMillan, J., & Schumacher, S. (2001). *Research in education: A conceptual introduction. New York, NY: Longman.*

Meltsner, A. (1976). *Policy analysts in the bureaucracy.* Berkeley, CA: University of California Press.

Nilakanta, R. (2006). Participatory instructional design: A study of an emerging paradigm. Unpublished doctoral dissertation. Iowa State University.

Osgood, C. E. (1959). The representation model and relevant research methods. In Ithiel de Sola Pool (Ed.), *Trends in constant analysis* (pp. 33–88). Urbana: University of Illinois Press.

Parizeau, K. (2006). A world of trash: from Canada to Cambodia, waste is a common problem with common solutions. *Alternatives Journal*, *32*(1), 16-18.

Reiser, R. A. (2001). A history of instructional design and technology: part II: a history of instructional design. *Educational Technology Research and Development*, *49*(2), 57-67.

Richey, R. C., Fields, D. C., & Foxon, M. (2001). *Instructional Design Competencies: The standards.* Syracuse: ERIC Clearinghouse on Information & Technology.

Seattle City Clerk's Office (2007). *Legislative records, city council resolution.* Retrieved August 14, 2007, from Seattle City Council Resolution Index.

Seattle Public Utilities, (2006). *2006 curbside recycling report*. Retrieved, February 07, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@usm/documents/webcontent/spu01_002136.pdf

Seattle Public Utilities, (2007a). *2007 curbside recycling report*. Retrieved, February 07, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@usm/documents/webcontent/spu01_002819.pdf

Seattle Public Utilities, (2007b). *2007 apartment recycling report*. Retrieved, February 07, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@usm/documents/webcontent/spu01_002818.pdf

Seattle Public Utilities, (2007c). *At your service newsletter.* Retrieved April 22, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@diroff/documents/webcontent/cos_001857.pdf

Seattle Public Utilities, (2007d). *Curbwaste and conserve newsletter.* Retrieved April 22, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@diroff/documents/webcontent/spu01_002533.pdf

Seattle Public Utilities, (2007e). *Recycling i.q. game.* Retrieved April 22, 2007 from http://www2.ci.seattle.wa.us/util/RecyclingIQ/recyclingiqgame.swf

Seattle Public Utilities, (2007f). *Recyclable materials poster.* Retrieved April 22, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@csb/documents/webcontent/spu01_001922.pdf

Seattle Public Utilities, (2007g). *Recycling ordinance flyer.* Retrieved April 22, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@csb/documents/webcontent/spu01_001878.pdf

Seattle Public Utilities, (2007h). *Recycling tips for apartments and condominiums video.* Retrieved April 22, 2007 from http://www.seattlechannel.org/videos/video.asp?ID=2257

Seattle Public Utilities, (2007i). *Residential recycling program.* Retrieved April 22, 2007 from http://www.seattle.gov/util/About_SPU/Recycling_System/History_&_Overview/RESIDENTIA_200312021144083.asp

Seattle Public Utilities, (2007j). *Sample letter to tenants.* Retrieved April 22, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@csb/documents/webcontent/cos_003974.pdf

Seattle Public Utilities, (2007k). *Yard and food collection poster.* Retrieved April 22, 2007 from http://www.seattle.gov/util/stellent/groups/public/@spu/@csb/documents/webcontent/spu01_002122.pdf

Seels, B. & Glasgow, Z. (1998). *Making instructional design decisions.* Upper Saddle River, New Jersey: Merrill

Shrock, S. & Coscarelli, W. (2000). Criterion-Referenced Test Development (2nd edition). Silver Spring, MD: International Society for Performance Improvement.

Simmons, P., Goldstein, N., Kaufman, S. M., Themelis, N. J., & Thompson, J. J. (2006). The state of garbage in America*. BioCycle*, *47*(4), 26-43.

Smith, P. L., & Ragan, T. J. (1992). *Instructional Design*. New York: Merrill

Smith, P. L., & Ragan, T. J. (2005). *Instructional Design*. Hoboken: John Wiley & Sons.

Spiegelman, H. (2006). Hope in wasteland: a radical but reachable departure from current practice will put product waste back in the hands of producers, and allow cities to follow their zero-waste dreams. *Alternatives Journal*, *32*(1), 8-12.

Straughan, R. D. R., & James, A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of Consumer Marketing, 16*(6), 558-575.

Tripp, S. D., & Bichelmeyer, B. (1990). Rapid prototyping: an alternative instructional design strategy. *Educational Technology Research and Development, 38*(1), 31-44. In Smith, P. L., & Ragan, T. J. (2005). *Instructional Design*. Hoboken: John Wiley & Sons.

United States Environmental Protection Agency. (2006). *Municipal solid waste in the United States: 2005 facts and figures.* Retrieved December 03, 2006 from http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/mswchar05.pdf

United States Census Bureau, (2007a). *American Fact Finder: Population finder,* Retrieved April 22, 2007 from http://factfinder.census.gov/servlet/SAFFPopulation?_submenuId=population_0&_sse=on

United States Census Bureau, (2007b). *American Fact Finder: Population finder,* Retrieved February 07, 2007 from http://factfinder.census.gov/servlet/ACSSAFFFacts?_event=&geo_id=16000US5363000&_geoContext=01000US%7C04000US53%7C16000US5363000&_street=&_county=seattle&_cityTown=seattle&_state=04000US53&_zip=&_lang=en&_sse=on&ActiveGeoDiv=geoSelect&_useEV=&pctxt=fph&pgsl=160&_submenuId=factsheet_1&ds_name=null&_ci_nbr=null&qr_name=null&reg=null%3Anull&_keyword=&_industry=

Weber, R. P. (1985). *Basic Content Analysis*. London: Sage.

Weimer, D., and Vining, A. (1989). *Policy analysis: Concepts and practice.* Englewood Cliffs, NJ: Prentice-Hall.

APPENDIX A. ANALYSIS TOOL

Submit via Email | Print Form

Educational Materials Analysis Checklist

Evaluator:		Current Date:	12/11/07
Material Analyzed:		Final Rating:	0 /60

Criteria:	Notes:
Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	Rating: 1 2 3 4 5 (Low ⟷ High)
Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	Rating: 1 2 3 4 5 (Low ⟷ High)

Next Page | Last Page

Print Form

Criteria:

Notes:

Review the type of learners the instruction aims to address. Does the material cover what it claims?

Rating:

1 2 3 4 5

Low ⟷ High

Is the material easy to read (and/or navigate)?

Rating:

1 2 3 4 5

Difficult ⟷ Easy

Is the material consistent in terms of language, use of illustrations, and visual design?

Rating:

1 2 3 4 5

Low ⟷ High

Next Page | Previous Page | Last Page

Print Form

Criteria: **Notes:**

Is the material visually appealing?

Rating:

1 2 3 4 5

Low ⟷ High

Does the material at any point guide or offer feedback to learners?

Rating:

1 2 3 4 5

Low ⟷ High

Is the design of the material appealing to the intended audience?

Rating:

1 2 3 4 5

Low ⟷ High

First Page | Next Page | Previous Page | Last Page

Print Form

Criteria:	Notes:
Can the material grab the intended audience's attention and keep the learners engaged?	

Rating:

1 2 3 4 5

Low ⟷ High

Criteria:	Notes:
Is the instructional experience satisfying?	

Rating:

1 2 3 4 5

Low ⟷ High

Criteria:	Notes:
Does the design of the material convey a message the users can safely invest in?	

Rating:

1 2 3 4 5

Low ⟷ High

Print Form

Criteria:

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?

Notes:

Rating:

1 2 3 4 5

Low ⟷ High

First Page | Next Page | Previous Page | Last Page

Recyclable Materials Poster													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	4	3	4	5	5	4	3	4	3	3	4	3	45
Evaluator 2	4	3	4	5	5	5	3	4	3	3	4	3	46
Evaluator 3	4	3	4	4	5	5	3	4	3	3	4	3	45
Evaluator 4	3	3	3	5	5	5	3	4	3	3	4	3	44
													Ratings Data
Mean Score	3.75	3	3.75	4.75	5	4.75	3	4	3	3	4	3	45
High Score	4	3	4	5	5	5	3	4	3	3	4	3	52
Low Score	3	3	3	4	5	4	3	4	3	3	4	3	38
													Std. Dev. For Overall Score
Std. Dev.	0.00	0.00	0.00	0.58	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.82
													Kappa
Kappa													0.74

Recycling Tips for Apartments and Condominiums Video													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	5	5	4	4	5	3	4	4	4	4	4	4	50
Evaluator 2	5	4	4	4	5	3	4	4	4	3	5	4	49
Evaluator 3	5	4	4	4	5	3	4	4	4	3	5	4	49
Evaluator 4	5	4	4	4	5	3	4	4	4	3	4	4	48
													Ratings Data
Mean Score	5	4.25	4	4	5	3	4	4	4	3.25	4.5	4	49
High Score	5	5	4	4	5	3	4	4	4	4	5	4	50
Low Score	5	4	4	4	5	3	4	4	4	3	4	4	48
													Std. Dev. For Overall Score
Std. Dev.	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.58	0.00	0.82
													Kappa
Kappa													0.79

Recycling I.Q. Game													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	5	5	3	4	5	4	5	3	4	4	5	3	50
Evaluator 2	5	5	3	4	5	4	5	3	4	4	5	3	50
Evaluator 3	5	5	3	4	5	4	5	3	3	3	5	3	48
Evaluator 4	5	5	3	4	4	4	5	3	3	3	5	3	47
													Ratings Data
Mean Score	5	5	3	4	4.75	4	5	3	3.5	3.5	5	3	48.75
High Score	5	5	3	4	5	4	5	3	4	4	5	3	50
Low Score	5	5	3	4	4	4	5	3	3	3	5	3	47
													Std. Dev. For Overall Score
Std. Dev.	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.58	0.58	0.00	0.00	1.50
													Kappa
Kappa													0.77

At Your Service Newsletter													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	4	5	5	5	5	5	3	3	4	4	4	3	50
Evaluator 2	4	5	5	5	5	5	4	4	4	4	5	2	52
Evaluator 3	4	5	5	5	5	5	4	4	4	5	5	3	54
Evaluator 4	4	5	4	5	4	5	4	4	4	4	5	3	51
													Ratings data
Mean Score	4	5	4.75	5	4.75	5	3.75	3.75	4	4.25	4.75	2.75	51.75
High Score	4	5	5	5	5	5	4	4	4	5	5	3	54
Low Score	4	5	4	5	4	5	3	3	4	4	4	2	50
													Std. Dev. For Overall Score
Std. Dev.	0.00	0.00	0.50	0.00	0.50	0.00	0.50	0.50	0.00	0.50	0.50	0.50	1.71
													Kappa
Kappa													0.58

CurbWaste and Conserve Newsletter													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	5	5	4	4	5	5	5	4	5	4	5	4	55
Evaluator 2	5	5	5	4	5	5	5	5	5	5	5	4	58
Evaluator 3	5	5	5	4	5	5	5	5	5	5	5	4	58
Evaluator 4	5	5	5	4	5	5	5	5	5	5	5	4	58
													Ratings Data
Mean Score	5	5	4.75	4	5	5	5	4.75	5	4.75	5	4	57.25
High Score	5	5	5	4	5	5	5	5	5	5	5	4	58
Low Score	5	5	4	4	5	5	5	4	5	4	5	4	55
													Std. Dev. For Overall Score
Std. Dev.	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.00	0.00	1.50
													Kappa
Kappa													0.78

Recycling Ordinance Flyer													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	4	4	4	5	5	5	4	5	5	4	4	2	51
Evaluator 2	4	5	4	5	5	5	3	5	5	5	4	2	52
Evaluator 3	5	5	4	5	5	5	3	5	5	5	4	2	53
Evaluator 4	4	5	4	5	4	5	3	4	5	5	4	2	50
													Ratings Data
Mean Score	4.25	4.75	4	5	4.75	5	3.25	4.75	5	4.75	4	2	51.5
High Score	5	5	4	5	5	5	4	5	5	5	4	2	53
Low Score	4	4	4	5	4	5	3	4	5	4	4	2	50
													Std. Dev. For Overall Score
Std. Dev.	0.50	0.50	0.00	0.00	0.50	0.00	0.50	0.50	0.00	0.50	0.00	0.00	1.29
													Kappa
Kappa													0.59

Sample Letter to Tenants Notice													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	5	5	4	5	4	2	4	2	3	3	4	4	45
Evaluator 2	5	5	4	5	5	3	4	3	4	4	4	4	50
Evaluator 3	5	5	4	5	5	3	4	3	4	3	4	4	49
Evaluator 4	5	5	4	5	5	3	4	3	4	3	4	4	49
													Ratings Data
Mean Score	5	5	4	5	4.75	2.75	4	2.75	3.75	3.25	4	4	48.25
High Score	5	5	4	5	5	3	4	3	4	4	4	4	50
Low Score	5	5	4	5	4	2	4	2	3	3	4	4	49
													Std. Dev. For Overall Score
Std. Dev.	0.00	0.00	0.00	0.00	0.58	0.58	0.00	0.58	0.58	0.58	0.00	0.00	2.22
													Kappa
Kappa													0.73

Yard and Food Collection													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Overall Document Score
Evaluator 1	4	4	5	3	5	5	3	5	3	5	4	2	48
Evaluator 2	5	5	4	3	5	5	3	4	4	4	3	1	46
Evaluator 3	5	4	4	3	5	5	3	4	4	4	4	2	47
Evaluator 4	5	4	4	3	5	5	3	4	4	4	4	2	47
													Ratings Data
Mean Score	4.75	4.25	4.25	3	5	5	3	4.25	3.75	4.25	3.75	1.75	47
High Score	5	5	5	3	5	5	4	5	4	5	4	2	48
Low Score	4	4	4	3	5	5	3	4	3	4	3	1	46
													Std. Dev. For Overall Score
Std. Dev.	0.58	0.58	0.58	0.00	0.00	0.00	0.00	0.58	0.58	0.58	0.58	0.58	0.82
													Kappa
Kappa													0.52

Mean Kappa	0.69
High Kappa	0.79
Low Kappa	0.52

Mean Overall Document Scores for All Eight Materials/Documents	
Mean Overall Document Scores	49.81
High Overall Document Scores	57.25
Low Overall Document Scores	45.00

APPENDIX C. KAPPA CALCULATION

Calculating a Generalized Kappa Statistic for Use With Multiple Raters

Calculations based on equations presented in Fleiss (*Statistical Methods for Rates and Proportions*, 1981, pp. 229-232)

NOTE: Click on tabs below for additional Excel sheets based on the number of categories in your dataset.

Directions: Enter values and data in shaded areas only.

Enter # of raters (m):	4
Enter # of subjects (n):	12
# of categories (k):	5

For each item below, enter the number of raters who placed the item into each respective category (delete/add rows as necessary):

	n of raters				
Item	1	2	3	4	5
1	0	0	0	0	4
2	0	0	0	3	1
3	0	0	0	4	0
4	0	0	0	4	0
5	0	0	0	0	4
6	0	0	4	0	0
7	0	0	0	4	0
8	0	0	0	4	0
9	0	0	0	4	0
10	0	0	3	1	0
11	0	0	0	4	0
12	0	0	0	4	0

****

BY CATEGORY

gen kappa_cat1 =	#DIV/0!
gen kappa_cat2 =	#DIV/0!
gen kappa_cat3 =	1.000
gen kappa_cat4 =	1.000
gen kappa_cat5 =	0.863

****

OVERALL

gen kappa =	0.833		
$SE_{Fleiss1}$[a]	0.162	$SE_{Fleiss2}$[b]	0.088
z =	5.144	z =	9.438
p calc =	0.000000	p calc =	0.000000
CI_{Lower} =	0.516	CI_{Lower} =	0.660
CI_{Upper} =	1.150	CI_{Upper} =	1.006

[a]This approximate standard error formula based on Fleiss (*Psychological Bulletin*, 1971, Vol. 76, 378-382)

[b]This approximate standard error formula based on Fleiss, Nee & Landis (*Psychological Bulletin*, 1979, Vol. 86, 974-977)

APPENDIX D. EDUCATIONAL MATERIALS AND ANALYSIS

SPU Recyclable Materials Poster

The SPU Recyclable Materials poster features large green and red sections with images of what is and is not acceptable recycling within Seattle's recycling program. A more detailed list of categorized materials (such as paper and glass) is also listed in bulleted form to provide a written description for readers. Finally, the poster includes a 'question and answer' section addressing the community's most common question followed by contact information for further questions not addressed in the material.

Recycle. It's Not Garbage Anymore!

See if you know what CAN and CAN'T be recycled.

Recycling YES

Recycling NO

Seattle Public Utilities

Recyclables should be empty, clean and unbagged; no food or soiled materials. Put glass in Glass Only separate container.
www.seattle.gov/util/services/recycling (206) 684-3000 TTY/233-7241

SPU Recyclable Materials Poster			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	4	3	3.75
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	3	3	3
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	3	3.75
4. Is the material easy to read (and or navigate)?	5	4	4.75
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	5	4	4.75
7. Does the material at any point guide or offer feedback to learners?	3	3	3
8. Is the design of the material appealing to the intended audience?	4	4	4
9. Can the material grab the intended audience's attention and keep the learners engaged?	3	3	3
10. Is the instructional experience satisfying?	3	3	3
11. Does the design of the material convey a message the users can safely invest in?	4	4	4
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	3	3	3
Document Score	52	38	45
Document Inter-Rater Reliability Score (K)	0.74		

The Recyclable Materials poster analysis revealed a mean document score of 45, where the low was 38, and the high was 52. The inter-rater reliability for the evaluators' individual ratings was 0.74, which is a substantial agreement.

Question 1: High 4, low 3, mean 3.75.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). The feedback generated by the evaluators all agreed the intended change for this document was both cognitive and affective given the educational aspect related to the separation of recyclables and the message broadcast (pro-environment and waste-stream diversion).

Question 2: High 3, low 3, mean 3.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? Some of the evaluators felt that the objectives were sufficient serving as the title of document; others noted the objectives of the document were not clearly indicated. A common suggestion was to explicitly state the objectives in the material.

Question 3: High 4, low 3, mean 3.75.

Review the type of learners the instruction aims to address. Does the material cover what it claims? Overall, the evaluators agreed the document does cover what

it claims (educating users on the proper method of separating acceptable and unacceptable recyclables), despite not stating the intended audience.

Question 4: High 5, low 4, mean 4.75.

Is the material easy to read (and or navigate)? All of the evaluators agreed the material was easy to navigate – font-size and colors aided in readability, and associated images were an added bonus as well.

Question 5: High 5, low 5, mean 5.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators all agreed the layout, use of illustrations, and language were all consistent and appealing.

Question 6: High 5, low 4, mean 4.75.

Is the material visually appealing? The evaluators felt the use of colors was implemented well – green for acceptable practices, and red for unacceptable practices. The use of illustrations along with the color-coded sections makes the material easy to understand and visually appealing.

Question 7: High 3, low 3, mean 3.

Does the material at any point guide or offer feedback to learners? The evaluators all commented on the positive aspect of how the document guides users

on what is acceptable and unacceptable and there is an answer and question section which is another positive, but the document does not offer feedback to the users directly. Instead, SPU provides a phone number and URL for feedback.

Question 8: High 4, low 4, mean 4.

Is the design of the material appealing to the intended audience? This question generated little feedback for this document, but overall the evaluators agreed the material was appealing for the intended audience. Again, comments noted the use of color was implemented well – green for acceptable practices, and red for unacceptable practices

Question 9: High 3, low 3, mean 3.

Can the material grab the intended audience's attention and keep the learners engaged? The evaluators' comments noted that initially the document's colors and illustrations make it appealing, but the information would mostly only appeal to those who are interested in recycling in the proper manner according to what the material suggests.

Question 10: High 3, low 3, mean 3.

Is the instructional experience satisfying? This particular question generated various reactions amongst the evaluators. One evaluator mentioned that while being an advocate for environmental efforts, referring to material with such a long

list of acceptable and unacceptable materials is both bothersome and tiresome. Another evaluator commented that what is presented in the material conflicts with their previous experiences in recycling, thus making the experience confusing for that particular evaluator.

Question 11: High 4, low 4, mean 4.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the users can safely invest in (pro-environmental behaviors, as well as waste-stream reduction).

Question 12: High 3, low 3, mean 3.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? The evaluators all agreed that while the material does communicate the users' participation as benefiting not only them, but also larger audiences, the document is more proficient at explaining the benefit to society than the individual. Other comments also noted that more environmental arguments could benefit the document to supplement the financial arguments used within the material as well.

SPU Recycling Tips for Apartments and Condominiums Video


RECYCLE ONLY

SPU Recycling Tips for Apartments and Condominiums Video			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	4	4.25
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	4	4
4. Is the material easy to read (and or navigate)?	4	4	4
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	3	3	3
7. Does the material at any point guide or offer feedback to learners?	4	4	4
8. Is the design of the material appealing to the intended audience?	4	4	4
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	4	4
10. Is the instructional experience satisfying?	4	3	3.25
11. Does the design of the material convey a message the users can safely invest in?	5	4	4.5
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	4	4	4
Document Score	50	48	49
Document Inter-Rater Reliability Score (K)	0.79		

The Recycling Tips for Apartments and Condominiums Video's mean document score was 49, where the low was 48, and the high was 50. The inter-rater reliability for the evaluators' individual ratings was 0.79, which is a substantial agreement.

Question 1: High 5, low 5, mean 5.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). The feedback from the evaluators all agreed the intended change for this document was both cognitive and affective. The video instructed apartment and condominium dwellers how to recycle properly.

Question 2: High 5, low 4, mean 4.25.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? The evaluators' comments collectively agree the video states and cover the objectives. There was some confusion noted by some of the evaluators – they felt that while the production was intended for apartment dwellers, the information seemed broad, and aimed at a broad audience regardless of their living situation.

Question 3: High 4, low 4, mean 4.

Review the type of learners the instruction aims to address. Does the material cover what it claims? Overall, the evaluators agreed the document does cover what it claims (Seattle residents recycling habits), yet one evaluator's comments noted confusion whether the video targeted apartment dwellers or individuals such as homeowners as the video addresses both.

Question 4: High 4, low 4, mean 4.

Is the material easy to read (and or navigate)? All of the evaluators agreed the material was easy to navigate – one evaluator noted the video being quite dark on their monitor, and all of the evaluators felt the video would be easier to use and navigate if it were available in the Flash video format as opposed to the Real Player format.

Question 5: High 5, low 5, mean 5.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators all agreed the video was consistent is use of language, illustrations, and visual design.

Question 6: High 3, low 3, mean 3.

Is the material visually appealing? Two of the evaluators felt the characters with costumes portrayed in the video were too "cartoonish" and childish for adult viewers despite being appealing for children. The other two evaluators disagreed,

noting the characters were perceived as enjoyable and acceptable for both children and adults.

Question 7: High 4, low 4, mean 4.

Does the material at any point guide or offer feedback to learners? The evaluators noted that feedback was provided in a skit where one character attempts to place a recyclable material in the incorrect bin, just to be corrected by another character. The evaluators also noted the end of the video containing a universal resource link (URL) and a phone number to contact SPU.

Question 8: High 4, low 4, mean 4.

Is the design of the material appealing to the intended audience? Overall, the evaluators agreed the material was appealing for the intended audience, despite the childish characters.

Question 9: High 4, low 4, mean 4.

Can the material grab the intended audience's attention and keep the learners engaged? The evaluators' comments noted that the video does well in placing the audience in a contextual situation – an apartment complex (as the video was aimed at apartment dwellers) where examples of acceptable and unacceptable recycling practices were perceived as motivational by all of the evaluators. Two of the evaluators noted the production was above average.

Question 10: High 4, low 3, mean 3.25.

Is the instructional experience satisfying? One of the evaluator's comments mentioned that while the experience was satisfying, there should be a knowledge-based test that can be taken to assess understanding. This evaluator also mentioned the video being entertaining, stimulating, and motivating by increasing curiosity on the subject of recycling, but again cannot gauge what is learned from the video by just watching. Another evaluator noted the experience would have been more enjoyable had there not been the childish characters throughout the video.

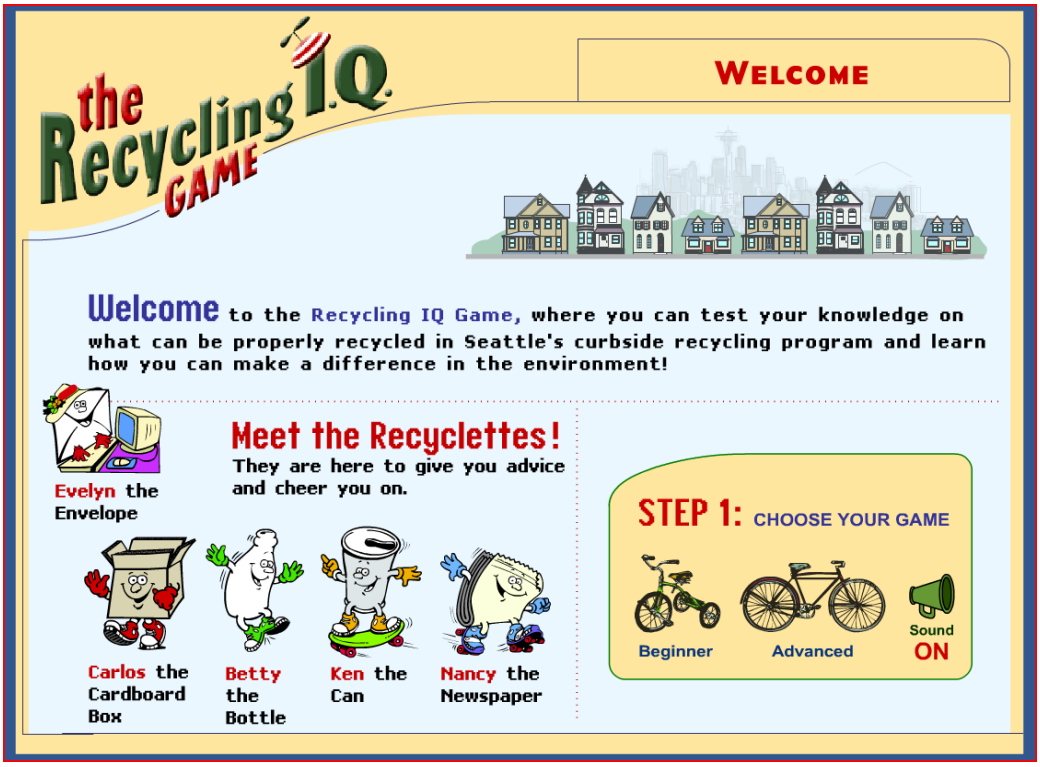
Question 11: High 5, low 4, mean 4.5.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the users can safely invest in (pro-environmental behaviors, as well as waste-stream reduction).

Question 12: High 4, low 4, mean 4.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? Little feedback was received for this question other than all of the evaluators agreeing with the question.

SPU Recycling I.Q. Game




the Recycling I.Q. GAME
LEVEL: BEGINNER ADVANCED
Plastic dairy tub
RECYCLE
GLASS
New Beginner Game
New Advanced Game
Exit Game
Sound ON


the Recycling I.Q. GAME
LEVEL: BEGINNER ADVANCED
Click Here for Another Item
Super!
Please clean tubs before recycling. This type of plastic can be converted into a flower pot, compost bin, or recycling bin.
Remove the lids from these containers...
RECYCLE
GLASS
New Beginner Game
New Advanced Game
Exit Game
Sound OFF

SPU Recycling I.Q. Game			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	3	3	3
4. Is the material easy to read (and or navigate)?	4	4	4
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	4	4	4
7. Does the material at any point guide or offer feedback to learners?	5	5	5
8. Is the design of the material appealing to the intended audience?	3	3	3
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	3	3.5
10. Is the instructional experience satisfying?	4	3	3.5
11. Does the design of the material convey a message the users can safely invest in?	5	5	5
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	3	3	3
Document Score	50	47	48.75
Document Inter-Rater Reliability Score (κ)	0.77		

The recycling game's mean document score was 48.75, where the low was 47, and the high was 50. The inter-rater reliability for the evaluators' individual ratings was 0.77, which is a substantial agreement.

Question 1: High 5, low 5, mean 5.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). The feedback generated from the evaluators note the game elicits cognitive change, yet little to no elements of affective change exist or are attempted within the material.

Question 2: High 5, low 5, mean 5.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? The evaluators' comments collectively agree the game states and cover the objectives as clearly stated on the welcome page (to help test the users' knowledge of acceptable and unacceptable recyclables and where they go).

Question 3: High 3, low 3, mean 3.

Review the type of learners the instruction aims to address. Does the material cover what it claims? Overall, the evaluators agreed the document does cover what it claims. All of the evaluators agreed that its use of cartoon characters broadcasts a

message to users that the game is directed at children, yet the content is appropriate (knowledge-level wise) for teens and older.

Question 4: High 4, low 4, mean 4.

Is the material easy to read (and or navigate)? The evaluators all agreed that once they figured out how to start the game from the welcome page, material was easy to navigate.

Question 5: High 5, low 4, mean 4.75.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators all agreed the video was consistent is use of language and illustrations and visual design.

Question 6: High 4, low 4, mean 4.

Is the material visually appealing? Two of the evaluators felt the cartoon-based theme portrayed in the game were too "cartoonish" and childish for adult viewers despite being appealing for children. The other two evaluators disagreed, noting the characters were perceived as enjoyable and acceptable for both children and adults.

Question 7: High 5, low 5, mean 5.

Does the material at any point guide or offer feedback to learners? The evaluators noted that overall guidance and feedback was present in the recycling game. The evaluators also noted that feedback is generally better and more thorough when the user answers a question incorrectly. One evaluator mentioned that the feedback provided could me more consistent such as providing more information regarding the reasons why a particular action is important, etc. This information appears for some questions answered incorrectly and for other questions answered incorrectly, the game instead presents a factoid.

Question 8: High 3, low 3, mean 3.

Is the design of the material appealing to the intended audience? All of the evaluators mentioned the intended audience was not explicitly stated, and two evaluators noted the game not being appealing to adults simply because of its childish look and appearance. One evaluator noted the material might not be appealing for busy adults who want to learn how to recycle.

Question 9: High 4, low 3, mean 3.5.

Can the material grab the intended audience's attention and keep the learners engaged? Two evaluators found the material engaging, the other two evaluators found the material moderately engaging. One comment noted that the advanced difficulty level was not advanced, many times "looking" like the beginner level.

Question 10: High 4, low 3, mean 3.5.

Is the instructional experience satisfying? Three evaluators found the game satisfying. Of these three evaluators, one remarked that the game was satisfying, but faced issues exiting the game – the option did not work properly. Further, the same evaluator noted the sound featured in the game was quite annoying, and could not understand how the sounds were linked to the purpose of the game. One of these three evaluators also commented on the lack of variety featured in the game when submitting a recyclable to a certain bin. Once a recyclable was submitted to a given bin, the recyclable could not be moved to another bin to receive feedback without restarting the game.

Question 11: High 5, low 5, mean 5.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the users can safely invest in (pro-environmental behaviors, as well as waste-stream reduction). One comment noted the visual representations and feedback provided was simple and not advanced as a positive aspect.

Question 12: High 3, low 3, mean 3.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? Little feedback was received for this question other than all of the evaluators agreeing with the question. The

evaluators also noted the most informative information for recycling came after completing the game on the advanced setting.

SPU At Your Service Newsletter

The Seattle Public Utilities At Your Service Newsletter is a community newsletter that covers water, drainage, wastewater, and solid waste utility services. The newsletter contains tips for winterizing your home both indoors and outdoors, how the city is responding to drainage and wastewater management issues, and other topics such as service rates and garbage collection during wintery conditions.

Seattle Public Utilities

NOV-DEC 2007

@ your SERVICE

Information about your water, drainage, wastewater and solid waste utility services.

Get Ready For Winter

Cold weather is here so now is the time to get your home and family prepared for wet weather and freezing temperatures. Follow these tips to ensure that you're protected:

Outdoor	Indoor
• Caulk around pipes where they enter the house and close all foundation vents to minimize cold wind from blowing into your house and freezing your pipes. Open the vents again in the spring to prevent dry rot. • Wrap outside faucets or hose bibs (Foam insulated covers are available at hardware stores). • Shut off and drain in-ground sprinkler systems. Follow manufacturer's instructions. • Drain and remove all outdoor hoses. • Use a rake or broom to collect leaves from storm drains (if safe) and place them in your yard waste cart or compost bin. Don't use a leaf blower to blow leaves into the street. To report clogged storm drains, call **(206) 386-1800**.	• Protect water pipes from freezing in exposed or unheated areas (attics, basements and garages) by wrapping with heat tape or insulating materials. Follow manufacturers' installation instructions. • Protect indoor sink pipes that are against exterior walls by opening under-sink cabinet doors to allow indoor heat to circulate. • During severe cold temperatures, allow one indoor faucet to slowly drip cold water. Select the faucet that is the farthest from your front door. Do not leave water running in unoccupied buildings. • If you're away during the winter months, set your thermostat no lower than 55 degrees Fahrenheit day or night.

Know where your utility shut-offs are located. In case of an emergency, you'll need to know how to shut off electricity, gas and water at main switches and valves.

If a water pipe breaks, immediately close the main shut-off valve to stop excessive flooding. If you cannot turn off the main shut-off valve, SPU customers can call **(206) 386-1800** and a crew will turn off the water at the meter for a standard service charge.

Sign up for CurbWaste E-News to receive e-mail alerts on weather impacts to your garbage, recycling and drainage services. Sign up at **www.seattle.gov/lists**. Visit **www.seattle.gov/emergency** to find information on making an emergency kit and creating a disaster plan for you and your family.

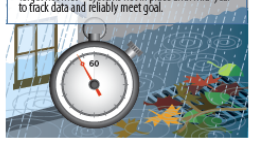
How Are We Doing?

To meet the service expectations of our customers, SPU sets and tracks service level targets. Over the next year, *@ Your Service* will highlight our progress in a series of infographics. For more information on service level targets, visit www.seattle.gov/util and search for "Service Levels."

Drainage & Wastewater Problem Response & Service Reliability

SERVICE LEVEL TARGET	TARGET MET IN 2006	TARGET MET YTD 2007
Respond to **80%** of safety-related waste- and surface-water problems within **1 hour.**	*	✓
Limit SPU-related sewer back-up issues to **0.1%** of customers.	✓	✓
Limit SPU drainage system-related interior flooding to **0.1%** of customers.	✓	✓

* Target not met – systems not in place until mid-year to track data and reliably meet goal.



Take Climate Action

Seattle Climate Action NOW

There is a growing recognition in Seattle that global warming isn't just a problem for future generations to worry about; it is a threat that we must start addressing today. Find out how you can make a difference at **www.SeattleCAN.org**.

New Rates in 2008

The Seattle City Council has approved new water, drainage, wastewater and garbage rates effective January 1, 2008 that will finance critical capital projects and encourage stewardship of the city's environment. Projects include remodeling the city's aging recycling and disposal stations, water quality improvements, a flood prevention project in Madison Valley, and expanded recycling programs.

	2007 Typical Residential Bill per month	2008 Typical Residential Bill per month
Water[1]	$22.97	$24.62
Sewer[1]	$38.74	$40.30
Drainage[2]	$11.83	$13.74
Solid Waste[3]	$21.55	$23.00

[1] *Typical residential bills assume monthly water usage of 5.5 ccf (hundred cubic feet) for water service and 5.2 ccf for sewer service.*

[2] *Drainage fees are billed for SPU as a separate line item on King County's annual property tax statements. In 2007 all residential customers pay the same fee. The typical bill for 2008 is an average bill. Residential property owners with parcels less than 5,000 square feet will pay less than they did in 2007.*

[3] *Typical residential garbage service is a 32 gallon garbage container and yardwaste service.*

The new drainage rates include a major update and re-design of the drainage rate structure, aimed at improving rate equity among customers. The new rates will more accurately reflect customers' impacts on the drainage system. For more information on drainage services and rates, please visit our website at **www.seattle.gov/util** and click on "Drainage & Sewer."

Snow/Ice Garbage Collections

Garbage and recycling pickups can be delayed during snowy and icy weather. If your garbage is not picked up during a storm, leave it out to be collected the following day. If weather still prevents collection, put all of your items out the next week on your regular collection day. You can report a missed garbage, recycling or yard waste collection after 6 p.m. on the day it was missed or within two working days by calling **(206) 684-3000** or visiting **www.seattle.gov/util/Services/Garbage**.

Stay Green This Holiday Season

Seattle residents may recycle trees and greens in their yard waste containers or free of charge at the city's North and South Recycling and Disposal stations between Dec. 26, 2007 and Jan. 13, 2008. Trees should not exceed eight feet tall and must be free of decoration. Trunks should not exceed four inches in diameter. The stations will accept up to three trees per vehicle for free. Find station hours at **www.seattle.gov/util/Services/Garbage** or by calling **(206) 684-3000**.

Yard waste subscribers can put trees and greens out on their regular yard waste collection day. Cut trees into sections, six feet long or shorter, with branches trimmed to less than four feet to fit into the collection trucks. Bundle each section with sisal string or twine (not plastic). Decorated or flocked trees are not recyclable.

Adopt a Drain and Prevent Flooding

Falling leaves and increased rains can block storm drains and lead to flooding. You can help prevent flooding in your neighborhood by volunteering to "Adopt-a-Drain" and keep storm drains clear of leaves and other debris.

"Adopt-a-Drain" volunteers commit to keeping one or more drains free of leaves and debris. Seattle Public Utilities will support volunteers with gloves, bags, brooms, rakes, and safety vests, and can also help with disposing of leaves.

To "Adopt a Drain," call **(206) 684-7647**, leave your name, phone number, and address, and we will send you everything you need to get started. Get more information at **www.seattle.gov/util**.

@ Your Service is published bimonthly by the Seattle Public Utilities Customer Service Branch, 700 5th Ave., Suite 2777; PO Box 34027; Seattle, WA 98124-4027. @ Your Service is also available at: www.seattle.gov/util
@ Su Servicio se encuentra ahora disponible en español en www.seattle.gov/util/About_SPU/News/.
phục vụ tiếng Việt sẵn sàng giúp đỡ tại www.seattle.gov/util/About_SPU/News.

SPU At Your Service Newsletter			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	4	4	4
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	5	4	4.75
4. Is the material easy to read (and or navigate)?	5	5	5
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	4	3	3.75
8. Is the design of the material appealing to the intended audience?	4	3	3.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	4	4
10. Is the instructional experience satisfying?	5	4	4.25
11. Does the design of the material convey a message the users can safely invest in?	5	4	4.75
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	3	2	2.75
Document Score	54	50	51.75
Document Inter-Rater Reliability Score (K)	0.58		

The at your service newsletter's mean document score was 51.75, where the low was 50, and the high was 54. The inter-rater reliability for the evaluators' individual ratings was 0.58, which is a moderate agreement.

Question 1: High 4, low 4, mean 4.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). The evaluators noted the type of change elicited by the newsletter varied due to various sections. The "Get ready for winter" and "Stay green" section elicited cognitive change only. The "How are we doing?" section elicited affective change only. The "Snow and Ice garbage collection," "New rates," and "Adopt…" sections elicited both cognitive and affective change.

Question 2: High 5, low 5, mean 5.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? The evaluators' comments collectively agree the newsletter states and cover the objectives (listed as titles and subtitles throughout the document).

Question 3: High 5, low 4, mean 4.75.

Review the type of learners the instruction aims to address. Does the material cover what it claims? The evaluators agreed the document does cover what it claims as it targets Seattle homeowners given the content of the newsletter.

Question 4: High 5, low 5, mean 5.

Is the material easy to read (and or navigate)? The evaluators all agreed that the newsletter was easy to read and brief.

Question 5: High 5, low 4, mean 4.75.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators commented the newsletter was highly consistent with language and visual design. The use of illustrations was inconsistent due to images ranging from real world images and examples to cartoon images. The evaluators agreed that choosing to stay with either real or cartoon images would help consistency.

Question 6: High 5, low 5, mean 5.

Is the material visually appealing? The evaluators commented that on the use of colors to separate topics and areas of the newsletter was not only simple, but also highly effective.

Question 7: High 4, low 3, mean 3.75.

Does the material at any point guide or offer feedback to learners? The evaluators noted the guidance presented throughout the newsletter was implemented quite well, despite issuing little feedback. The feedback the newsletter did offer was extra information available via a SPU telephone number and URL.

Question 8: High 4, low 3, mean 3.75.

Is the design of the material appealing to the intended audience? The evaluators agreed that for Seattle homeowners, this material is appealing, but the material could benefit from better graphical organization and use of graphics to enhance the messages contained with the material.

Question 9: High 4, low 4, mean 4.

Can the material grab the intended audience's attention and keep the learners engaged? Overall, comments noted the material could keep the intended audience engaged, but only when motivated. The material is simple to understand, brief, and clear.

Question 10: High 5, low 4, mean 4.25.

Is the instructional experience satisfying? All four evaluators found the newsletter to be a satisfying read. Other comments noted that there are many useful tips found in the newsletter for homeowners ranging from water conservation to winterizing for cold weather.

Question 11: High 5, low 4, mean 4.75.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the users can safely invest in. Comments noted the content relates to issues both directly and indirectly affecting Seattle home owners' lives and property, thereby making the information innately valuable.

Question 12: High 3, low 2, mean 2.75.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? All four evaluators agreed that most of the content within the newsletter only benefits the Seattle homeowner. There is a section on adopting a drain that the evaluators noted would benefit both the primary user and neighborhood as well.

SPU CurbWaste and Conserve Newsletter

The Seattle Public Utilities CurbWaste and Conserve Newsletter features tips and programs available to community members within Seattle. The newsletter contains helpful information such as how to manage residential storm drains during intense rain, a question and answer section for commonly asked questions regarding recycling services offered within Seattle, and upcoming community

events amongst other content. The newsletter also uses a variety of colors to outline the many separate sections and subjects included within the material.

Dear Evelyn:
What sort of container should I use to store my kitchen scraps before I put them in my food and yard waste cart?

We've received dozens of wonderfully creative and useful ideas for kitchen food scrap containers from our customers, including licorice and margarine tubs, store-bought kitchen compost buckets, and plastic milk jugs with their necks removed. Another suggestion is to use BioBags, which were recently approved by Cedar Grove Composting as 100% biodegradable and 100% compostable.

You can find these and other customer suggestions at www.seattle.gov/util and type in "kitchen container" or write Ask Evelyn for a written copy at the address below.

Many customers suggested using milk cartons. Unfortunately, they and other slick, shiny paper containers are polycoated with a plastic that does not break down into compost. The Cedar Grove facilities that turn your food waste into compost are being flooded with so many polycoated and waxed paper containers, their screens are getting clogged, with the material ending up in the landfill.

For now, milk cartons can still be used to store your kitchen scraps and placed in the yard and food waste cart, but I suggest exploring other alternatives to store your food scraps. Polycoated paper products that are empty should be rinsed out and put in recycling with your paper, bottles, jars and tubs.

Evelyn:
Can I throw my old energy-efficient light bulb in the garbage?

Fluorescent light bulbs and tubes are a great way to save energy and cut greenhouse gas emissions. They use about 75% less electricity than incandescent bulbs, and last up to 10 times as long. However, fluorescents contain mercury, and are prohibited in the garbage.

Good news! Local stores will recycle your used fluorescent lamps and bulbs. Visit www.takeitbacknetwork.org for a listing of Take It Back Network locations near you. Some stores may charge a fee.

Please send your recycling questions, tips or suggestions to
Ask Evelyn, Seattle Public Utilities,
PO Box 34018,
Seattle, WA 98124-4018
or e-mail Evelyn the Envelope at askevelyn@seattle.gov

Thank You!

Last year, Seattle residents helped make 24 million pounds of compost for local parks and gardens by putting leftover food scraps, coffee grounds, paper towels and pizza boxes in their yard and food waste carts.

This month, Seattle and local retailers are offering great discounts to recognize Seattle's 100,000 composting households. Just check the pledge, cut it out and bring it to any local participating Seattle retailer. Offers end September 30, 2007.

❑ YES! I recycle my leftover food scraps, pizza boxes, and food-soiled paper in my yard and food waste cart, or compost them at home.

Receive great rewards for recycling this month from these Seattle establishments:

- 25% off Cedar Grove Compost - made from your food scraps - at Lowe's.
- 25% off Endurance stainless steel kitchen compost pails at Goods for the Planet.
- Buy a 4-pack of Seventh Generation Bath Tissue and get a 120-count pack of Seventh Generation Paper Towels for free at Seattle's Whole Foods. PLU # 20933
- Buy one reusable PCC purple tote bag and receive a second tote for free at PCC Natural Markets. 99¢ value. NLU # 5757.
- Buy one tall Tully's barista beverage and receive a second tall beverage for FREE (offer excludes ice cream products). BARISTA: Please ring the lower priced beverage, then press "Variable Discount."

Not a subscriber to food and yard waste service? Visit www.seattle.gov/util or call (206) 684-3000 to sign up today!

Vie Vẻ dịch vụ phiên dịch xin gọi 206-684-3000.

Tag Para sa serbisyo ng tagapagpaliwanag, tumawag sa 206-684-3000.

Sp Para servicios de interpretación por favor llame al 206-684-3000.

Som Waxii turjubaan afka ah ku saabsan, fadlan la soo xariir taleefoonka: 206-684-3000.

Ko 통역 서비스를 원하시면 206-684-3000으로 전화하세요.

Ch 如需笔口译服务，请拨电话号码206-684-3000。

For interpretation services please call 206-684-3000.

ECRWSS
Postal Customer

PRESORTED STANDARD
U.S. POSTAGE
PAID
SEATTLE, WA
PERMIT NO. 6000

Seattle Public Utilities
700 5th Avenue, Suite 4900
PO Box 34018
Seattle, WA 98124-4018

Seattle Public Utilities

CurbWaste & Conserve

Tips and Programs for Seattle Residents — Fall 2007

Will You Be Ready?

Did you know that during intense rain, flooding may occur without warning? Here are a few steps you can take to keep your family and property safe.

- Clear leaves and debris away from street drains in your neighborhood with a rake or broom (only if it's safe). Don't put grass clippings, leaves, or other debris into drains, ditches, creeks, culverts, gutters or ravines. If a storm drain appears blocked below the street surface, call (206) 386-1800.
- Collect fallen leaves in your yard and deposit them in yard waste container or compost them.
- Clean gutters and downspouts twice a year.
- Have a family disaster plan.

- Build a family emergency kit. Keep enough water, food and other supplies (flashlights, crank or battery-operated radio, blankets) in your home to meet your needs for at least three days.
- Be the first to know! Sign up for CurbWaste & Conserve E-News to receive e-mail alerts on weather impacts to your garbage, recycling and drainage services. Sign up at www2.cityofseattle.net/util/forms/curbwaste/subscribe.htm

Please visit www.seattle.gov/emergency to find information on making an emergency kit and creating a disaster plan for you and your family.

City of Seattle
Gregory J. Nickels, Mayor

Seattle Public Utilities
Chuck Clarke, Director

PO Box 34018
Seattle, WA
98124-4018

www.seattle.gov/util

(206) 684-3000
(206) 233-7241 TTY

We Want to Hear From You!

Help shape the future of your Seattle Public Utilities! Seattle citizen volunteers are needed for Seattle Public Utilities' advisory committees that help keep us keep in touch with the community's viewpoints on solid waste, water and creeks and drainage issues.

Committees meet monthly in downtown Seattle from 4:30 to 7 p.m. Members can anticipate a time commitment of about 10 hours per month over a two-year term. Please contact Dee Dhlamini at (206) 684-5343 for more information.

SPU CurbWaste and Conserve Newsletter			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	5	4	4.75
4. Is the material easy to read (and or navigate)?	4	4	4
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	5	5	5
8. Is the design of the material appealing to the intended audience?	5	4	4.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	5	5	5
10. Is the instructional experience satisfying?	5	4	4.75
11. Does the design of the material convey a message the users can safely invest in?	5	5	5
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	4	4	4
Document Score	58	55	57.25
Document Inter-Rater Reliability Score (K)	0.78		

The CurbWaste and Conserve newsletter's mean document score was 57.25, where the low was 55, and the high was 58. The inter-rater reliability for the evaluators' individual ratings was 0.78, which is a substantial agreement.

Question 1: High 5, low 5, mean 5.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). All four evaluators noted the material attempting to elicit both cognitive and affective change (keeping gutters clean to prevent flooding, and including pictures of such events, including flooding).

Question 2: High 5, low 5, mean 5.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? The evaluators agreed the material covers what it claims. Given the material was mostly informative in nature, the headings and subheadings were treated as objectives.

Question 3: High 5, low 4, mean 4.75.

Review the type of learners the instruction aims to address. Does the material cover what it claims? The evaluators agreed the document does cover what it claims as it targets Seattle homeowners given the content of the newsletter.

Question 4: High 4, low 4, mean 4.

Is the material easy to read (and or navigate)? The evaluators all agreed that the newsletter was easy to read, but some sections included too much discussion (kitchen scrap containers). Comments noted that a bulleted list would have been sufficient.

Question 5: High 5, low 5, mean 5.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators commented the newsletter was highly consistent with language, use of illustrations, and visual design.

Question 6: High 5, low 5, mean 5.

Is the material visually appealing? The evaluators commented that on the use of colors to separate topics and areas of the newsletter was not only simple, but also highly effective.

Question 7: High 5, low 5, mean 5.

Does the material at any point guide or offer feedback to learners? The evaluators noted the guidance presented throughout the newsletter was implemented quite well, and the question and answer section offered answers to questions common in the community. Extra information was also available via a SPU telephone number and URL.

Question 8: High 5, low 4, mean 4.75.

Is the design of the material appealing to the intended audience? All four evaluators agreed the material was appealing for Seattle homeowners.

Question 9: High 5, low 5, mean 5.

Can the material grab the intended audience's attention and keep the learners engaged? Overall, comments noted the material could keep the intended audience engaged, especially with how the title and image was presented on the material.

Question 10: High 5, low 4, mean 4.75.

Is the instructional experience satisfying? All four evaluators found the newsletter to be a satisfying read. Other comments noted that there are many useful tips found in the newsletter for homeowners ranging from water conservation to winterizing for cold weather.

Question 11: High 5, low 5, mean 5.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the users can safely invest in. Comments noted the content relates to issues both directly and indirectly affecting Seattle home owners' lives and property, thereby making the information innately valuable.

Question 12: High 4, low 4, mean 4.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? All four evaluators agreed that most of the content within the newsletter benefits the Seattle homeowner as well as their community. There is a section on adopting a drain that the evaluators noted would benefit both the primary user and neighborhood as well. Another example is the "Green Seattle Partnership" where the community plants trees to help conserve the environment for the participating Seattle residents as well as the surrounding community.

SPU Recycling Ordinance Flyer

The Recycling Ordinance Flyer details Seattle's new ordinance prohibiting recyclables from the trash. It depicts the Seattle "Recyclettes" (recycling-theme based characters) as "wanted" similar to 'wanted' posters from the late 19th century America. The flyer also provides contact information for readers with questions.


WANTED
Recyclable paper, cans, cardboard and bottles are no longer allowed in Seattle's garbage!
Apartments and condos will be fined for repeatedly dumping recyclables in the garbage.
Recycle. It's Not Garbage Anymore!
Seattle Public Utilities
For free recycling assistance, contact
(206)-RECYCLE, www.seattle.gov/util

SPU Recycling Ordinance Flyer			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	4	4.25
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	4	4.75
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	4	4
4. Is the material easy to read (and or navigate)?	5	5	5
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	4	3	3.25
8. Is the design of the material appealing to the intended audience?	5	4	4.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	5	5	5
10. Is the instructional experience satisfying?	5	4	4.75
11. Does the design of the material convey a message the users can safely invest in?	4	4	4
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	2	2	2
Document Score	53	50	51.5
Document Inter-Rater Reliability Score (K)	0.59		

The Recycling Ordinance Flyer's mean document score was 51.5, where the low was 50, and the high was 53. The inter-rater reliability for the evaluators' individual ratings was 0.59, which is a moderate agreement.

Question 1: High 5, low 4, mean 4.25.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). All four evaluators noted the material attempting to elicit a cognitive change by notifying tenants recyclables are not allowed in the trash.

Question 2: High 5, low 4, mean 4.75.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? The evaluators agreed the material covers what it claims. One comment stated that while the material does discuss recyclables banned from trash, there is little detail provided or examples given.

Question 3: High 4, low 4, mean 4.

Review the type of learners the instruction aims to address. Does the material cover what it claims? The evaluators agreed the document does cover what it claims as it targets Seattle apartment dwellers given the content of the flyer, yet a couple comments noted that it was not entirely clear who (either the apartment dwellers,

the apartment manager, or owner) would suffer the consequences for not following the rules.

Question 4: High 5, low 5, mean 5.

Is the material easy to read (and or navigate)? The evaluators all agreed that the material was easy to read and navigate, as it was a simple flyer.

Question 5: High 5, low 4, mean 4.75.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators commented the newsletter was highly consistent with language, use of illustrations, and visual design.

Question 6: High 5, low 5, mean 5.

Is the material visually appealing? The evaluators commented that the use of colors and design used in the "Wanted" portion of the flyer created suspense, making the flyer attractive.

Question 7: High 4, low 3, mean 3.25.

Does the material at any point guide or offer feedback to learners? The evaluators noted the flyer does provide simple guidance in the manner of what not to do with your recyclables. Feedback is available via a SPU telephone number and URL.

Question 8: High 5, low 4, mean 4.75.

Is the design of the material appealing to the intended audience? All four evaluators agreed that for Seattle apartment and condominiums dwellers, the material was appealing and amusing.

Question 9: High 5, low 5, mean 5.

Can the material grab the intended audience's attention and keep the learners engaged? All four evaluators noted the material as having an excellent effect on the user with the materials' large fonts and brief message.

Question 10: High 5, low 4, mean 4.75.

Is the instructional experience satisfying? The evaluators noted that while the material does achieve what it claims to do, the material would benefit from providing more reasoning or education about why recyclables are prohibited from the trash.

Question 11: High 4, low 4, mean 4.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the users can safely invest in, albeit temporarily. If apartment dwellers do not comply with the new rules, the message conveys an upcoming threat in the form of a fine.

Question 12: High 2, low 2, mean 2.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? All four evaluators found that the material communicates a warning or threat. While in some respects it will benefit the participant as well as surrounding community, this information is not explicitly stated.

SPU Sample Letter to Tenants Notice

The Sample Letter to Tenants Notice is a sample notice that building managers can use to notify their tenants of new rules related to recycling. It is a plain letter describing some of the costs of managing solid waste in Seattle, and the consequences if the new policies are not followed. The notice provides the reader with contact information for those who may have questions.

*****New Building Recycling Rules*****

Dear Tenant,

Seattle has a well-deserved reputation as a recycling city. However, Seattle spends more than $26 million every year to send 920 million pounds of garbage to a landfill, where it will sit for thousands of years. About 25% of Seattle's garbage is still made up of recyclable items such as paper, cardboard, cans and bottles.

The City of Seattle recently passed an ordinance that requires all businesses and residences (including apartments, townhouses and condominiums), to recycle. Keeping recyclables out of the garbage will save Seattle residents as much as $2 million each year and keep future garbage bills low.

Ordinance 121372 states:

> "As of January 1, 2005, all residents…shall separate paper, cardboard, glass and plastic bottles and jars, and aluminum and tins cans for recycling; and no paper, cardboard, glass or plastic bottles and jars and aluminum or tin cans shall be deposited in the garbage."

Beginning in January 2006, if a garbage container has significant amounts of recyclables (more than 10% by volume), a $50 surcharge can be added to the account garbage bill.

Let's not waste a good thing. We appreciate your cooperation in putting all of your recyclable paper, cardboard, cans and bottles in recycling containers. Food-soiled paper is not recyclable.

Our recycling containers are located at _____
Please refer to the recycling information posted near those locations.

If you have questions about recycling, you can call **206-RECYCLE** or visit **www.seattle.gov/util/Services/Recycling** for information.

This recycling ordinance benefits all of us. I would be glad to talk with you if you if have questions about our building's recycling system. Thank you for your help!

Sincerely,

Apartment Manager Name

SPU Sample Letter to Tenants Notice			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	5	5
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	5	5
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	4	4	4
4. Is the material easy to read (and or navigate)?	5	5	5
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	4	4.75
6. Is the material visually appealing?	3	2	2.75
7. Does the material at any point guide or offer feedback to learners?	4	4	4
8. Is the design of the material appealing to the intended audience?	3	2	2.75
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	3	3.75
10. Is the instructional experience satisfying?	4	3	3.25
11. Does the design of the material convey a message the users can safely invest in?	4	4	4
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	4	4	4
Document Score	50	45	48.25
Document Inter-Rater Reliability Score (K)	0.73		

The Sample Letter to Tenant Notice's mean document score was 48.25, where the low was 45, and the high was 50. The inter-rater reliability for the evaluators' individual ratings was 0.73, which is a substantial agreement.

Question 1: High 5, low 5, mean 5.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). All four evaluators noted the material attempts to elicit both cognitive and affective change by notifying tenants recyclables are not allowed in the trash.

Question 2: High 5, low 5, mean 5.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? The material is a notice to tenants in apartments, and the evaluators agreed the material covers what it claims.

Question 3: High 4, low 4, mean 4.

Review the type of learners the instruction aims to address. Does the material cover what it claims? The evaluators agreed the document does cover what it claims as it targets Seattle apartment tenants given the content of the notice, yet one evaluator was confused as to how the new rules would be enforced.

Question 4: High 5, low 5, mean 5.

Is the material easy to read (and or navigate)? The evaluators all agreed that the material was easy to read and navigate, as it was a simple notice.

Question 5: High 5, low 4, mean 4.75.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators commented the notice was consistent with language use. There were no illustrations or visual design aspects to consider, as this material was a simple notice.

Question 6: High 3, low 2, mean 2.75.

Is the material visually appealing? The evaluators commented that the material being a simple notice was quite plain as a letter or notice would most likely be, though some comments noted that the notice could benefit from an official letterhead to improve some aspects of the visual aesthetic.

Question 7: High 4, low 4, mean 4.

Does the material at any point guide or offer feedback to learners? The evaluators noted the notice does provide simple guidance in the manner of what bins are acceptable for the tenants' recyclables. Feedback is available via a SPU telephone number and URL.

Question 8: High 3, low 2, mean 2.75.

Is the design of the material appealing to the intended audience? All four evaluators agreed that for Seattle apartment dwellers, the material was not appealing, but two comments noted little could be expected from a simple notice.

Question 9: High 4, low 3, mean 3.75.

Can the material grab the intended audience's attention and keep the learners engaged? All four evaluators noted the material was a plain notice to tenants, but the information contained within the material is important and relevant to tenants and could maintain their attention.

Question 10: High 4, low 3, mean 3.25.

Is the instructional experience satisfying? The evaluators noted that while the material does achieve what it claims to do, the material would benefit from providing more reasoning or education about why recyclables are prohibited from the trash. Another comment noted that the 'motivational' fine discussed in the material left the evaluator feeling somewhat threatened.

Question 11: High 4, low 4, mean 4.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the

users can safely invest in, albeit temporarily. If apartment dwellers do not comply with the new rules, the message conveys an upcoming threat.

Question 12: High 4, low 4, mean 4.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? All four evaluators found that the material communicates the problem as a community problem and the notice is an appeal to individuals in order to benefit themselves and their community.

SPU Yard and Food Collection Poster

The Yard and Food Collection poster features a colorful layout demonstrating examples of what is and is not acceptable in the yard waste collection bin. The material depicts these items in both images and text and offers the same poster in a variety of languages. The second page of the document includes advice and information on how to collect, process, and dispose of yard waste and food scraps for using the yard waste bin.

Yard and Food Collection

YES!

Yard Waste
Grass & leaves
Weeds
Prunings
Houseplants
Branches
(under 4' long, 4" wide)

Food-Soiled Paper
Paper towels & napkins
Paper plates & cups
Paper food wrap
Paper take-out cartons
Greasy pizza boxes
Milk cartons containing food scraps
Paper bags containing food scraps
Shredded paper

Food Scraps
Fruit & vegetables
Bread, pasta & grains
Eggshells, nutshells
Coffee grounds & filters
Tea bags

NO!
Meat, fish or chicken
Dairy products
Plastic bags, wrap, straws
Animal or human waste
Pet litter
Facial or toilet tissue
Diapers
Soil, rocks
Stumps/limbs
(over 6' long, 4" wide)
Lumber or fencing
Metal, plastic, glass
Hazardous waste
Grease or liquids
Styrofoam

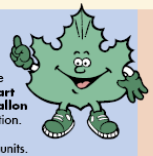
ለአማርኛ አመሪኛ
ເພື່ອ້ຖ້ອຣຄ໓ີ່ທ໓ຣຄ໓ຳຄາລາວ
若欲索取用中文繕寫的資訊
Чтобы получить информацию на русском языке, звоните по телефону
한국어로 안내를 원하시면
Para información en español
Muốn biết chi tiết bằng tiếng Việt ...
(206) 684-3000

Seattle Public Utilities
(206) 684-3000
TTY (206) 233-7241
www.seattle.gov/util/yard

Collect vegetative yard and food waste in carts provided by the City of Seattle.

Vegetative food waste is accepted in the city-provided cart only.

(Yard waste is not allowed in the garbage.)



Collection How-To's
- The **basic** monthly yard waste fee covers your **96-gallon cart AND one additional 32-gallon unit** of yard waste per collection. There is a charge for each additional unit over the basic units.
- Yard waste is collected every other week, year-round. Check your collection calendar or visit **www.seattle.gov/util/services/recycling** for your schedule.
- Do not use plastic bags for yard waste or food scraps/food-soiled paper.

What Do I Do With Extra Yard Waste?
Put yard waste that doesn't fit in the cart (no vegetative food waste) in any of these:
- **32-gallon cans** with handles and lids.
  - Weight limit 60 lbs.
  - Label cans "yard waste" and put your address on them.
- **Bundles**. Bundle yard waste with fiber twine. Do not use wire, nylon or plastic cord, which are not compostable. (Limit 4' long by 2' diameter.)
- **32-gallon Kraft paper** yard waste bags.

For Your Information
- Including vegetative food waste in yard waste carts is voluntary.
- Collected yard and food waste is composted and sold at home and garden stores as mulch. Visit **www.cedar-grove.com** for more information.
- For information on backyard composting: **www.seattle.gov/util/services/yard/composting/**
- Or call **(206) 684-3000.**

Food Scrap Storage Tips
To avoid odor and fruit flies, you can:
- Use empty paper cartons or paper bags to store vegetative food scraps. Paper cartons and bags can go in the yard and food waste cart with the scraps.
- Use a plastic container with a tight fitting lid to store vegetative food scraps (Empty contents into yard and food waste cart and reuse container).
- Empty vegetative food scraps into the yard waste cart daily.
- Rinse kitchen container and yard waste cart frequently into yard areas or sanitary sewer drains.
- Line kitchen container with a used paper towel or sprinkle baking soda in the container.
- Rub vinegar inside kitchen container lid.
- Layer vegetative food scraps with food-soiled paper, shredded paper, or yard waste in your cart.

6 02/2005

SPU Yard and Food Collection Poster			
	Ratings		
Question	**High**	**Low**	**Mean**
1. Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both).	5	4	4.75
2. Review the objectives and activities the instruction aims to address. Does the material cover what it claims?	5	4	4.25
3. Review the type of learners the instruction aims to address. Does the material cover what it claims?	5	4	4.25
4. Is the material easy to read (and or navigate)?	3	3	3
5. Is the material consistent in terms of language, use of illustrations, and visual design?	5	5	5
6. Is the material visually appealing?	5	5	5
7. Does the material at any point guide or offer feedback to learners?	3	3	3
8. Is the design of the material appealing to the intended audience?	5	4	4.25
9. Can the material grab the intended audience's attention and keep the learners engaged?	4	3	3.75
10. Is the instructional experience satisfying?	5	4	4.25
11. Does the design of the material convey a message the users can safely invest in?	4	3	3.75
12. Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience?	2	1	1.75
Document Score	48	46	47
Document Inter-Rater Reliability Score (K)	0.52		

The Yard and Food Collection poster analysis revealed a mean document score of 47, where the low was 46, and the high was 48. The inter-rater reliability for the evaluators' individual ratings was 0.52, which is a moderate agreement.

Question 1: High 5, low 4, mean 4.75.

Evaluate the type of change the material intends to produce in the learners. If the material is instructional, then there must be a goal of change in the learner (either cognitive, or affective, or both). The feedback generated by the evaluators all agreed the intended change for this document was cognitive, instructing users on the proper manner by which to recycle yard and food waste.

Question 2: High 5, low 4, mean 4.25.

Review the objectives and activities the instruction aims to address. Does the material cover what it claims? Some of the evaluators felt that the objectives were sufficient serving as the title of document; others noted the objectives of the document were not clearly indicated.

Question 3: High 5, low 4, mean 4.25.

Review the type of learners the instruction aims to address. Does the material cover what it claims? Overall, the evaluators agreed the document does cover what it claims, despite not stating the intended audience.

Question 4: High 3, low 3, mean 3.

Is the material easy to read (and or navigate)? All of the evaluators agreed the material was easy to navigate. A few comments noted that even though the material was easy to read, there was a large amount of text. Other comments noted the graphics used in the material were helpful.

Question 5: High 5, low 5, mean 5.

Is the material consistent in terms of language, use of illustrations, and visual design? The evaluators all agreed the layout, use of illustrations, and language were all consistent and appealing.

Question 6: High 5, low 5, mean 5.

Is the material visually appealing? The evaluators felt the use of colors was implemented well – green for acceptable practices, and red for unacceptable practices. The use of illustrations along with the color-coded sections makes the material easy to understand and visually appealing.

Question 7: High 3, low 3, mean 3.

Does the material at any point guide or offer feedback to learners? The evaluators all commented on the positive aspect of how the document guides users on what is acceptable and unacceptable. The document only offers feedback to users via a SPU telephone number or URL.

Question 8: High 5, low 4, mean 4.25.

Is the design of the material appealing to the intended audience? Overall, the evaluators agreed the material was appealing for the intended audience. Two evaluators found the second page might have benefited from more images to match consistency with the first page and aid in retention of the information presented.

Question 9: High 4, low 3, mean 3.75.

Can the material grab the intended audience's attention and keep the learners engaged? The evaluators' comments noted that initially the document's colors and illustrations make it appealing and engaging, but upon arriving at the second page the user is forced to slow down and read considerably more material than was presented on the first page.

Question 10: High 5, low 4, mean 4.25.

Is the instructional experience satisfying? The evaluators all agreed that the material created a satisfying instructional experience. The materials were helpful in delineating what is and is not acceptable in the yard waste container.

Question 11: High 4, low 3, mean 3.75.

Does the design of the material convey a message the users can safely invest in? All evaluators agreed that this document features a design and message that the

users can safely invest in (pro-environmental behaviors, as well as waste-stream reduction), despite not explicitly stating such a message.

Question 12: High 2, low 1, mean 1.75.

Does the design of the material communicate the users' participation as benefiting not only them, but also a larger audience? The evaluators all agreed that this document does not communicate the users' participation as benefiting them or a larger audience. The material focuses on yard and food waste as it pertains to the recycling container. No wider implications as a result of their participation are made other than the compost being sold for mulch, etc.